Environmental Noise Assessment

SNOW Museum Project

Placer County, California

November 23, 2022

Project #220214

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INTRODUCTION

The SNOW Sports Museum Center includes the construction of a single two-level 17,000 sq ft. building. The project is located in Placer County, California at the entrance of Olympic Valley Park, west of Olympic Valley Road. The project will include an outdoor gathering space, a place for events, and 6,000 sq ft. of parking space. Surrounding land uses include single-family residentials located northwest and west of the project site and commercial use directly north of the project site.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

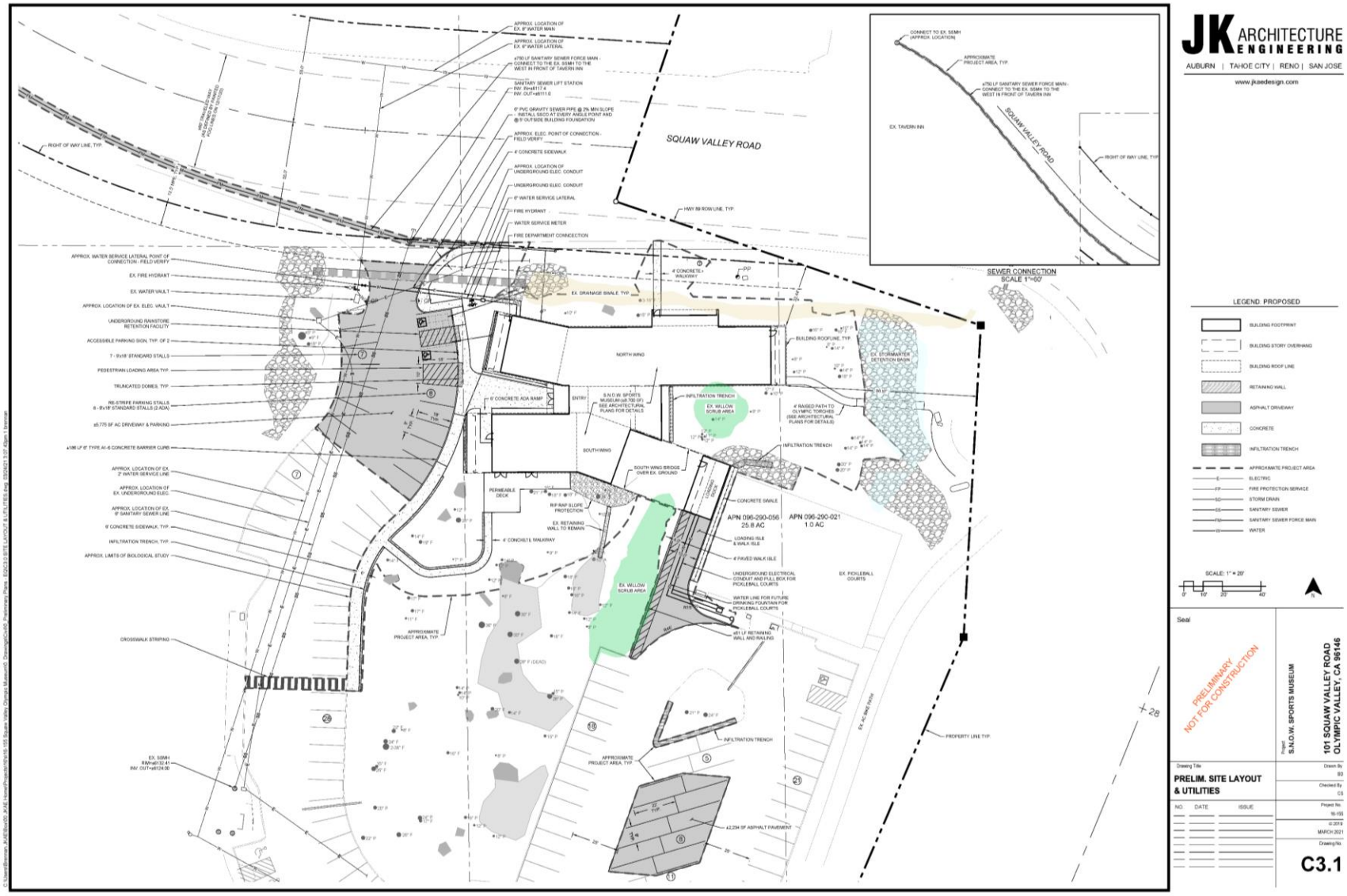
Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.



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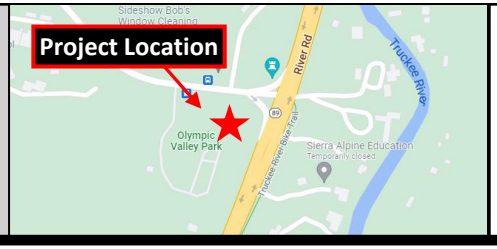
SNOW Museum Project

Placer County, California

Figure 1

Project Site Plan



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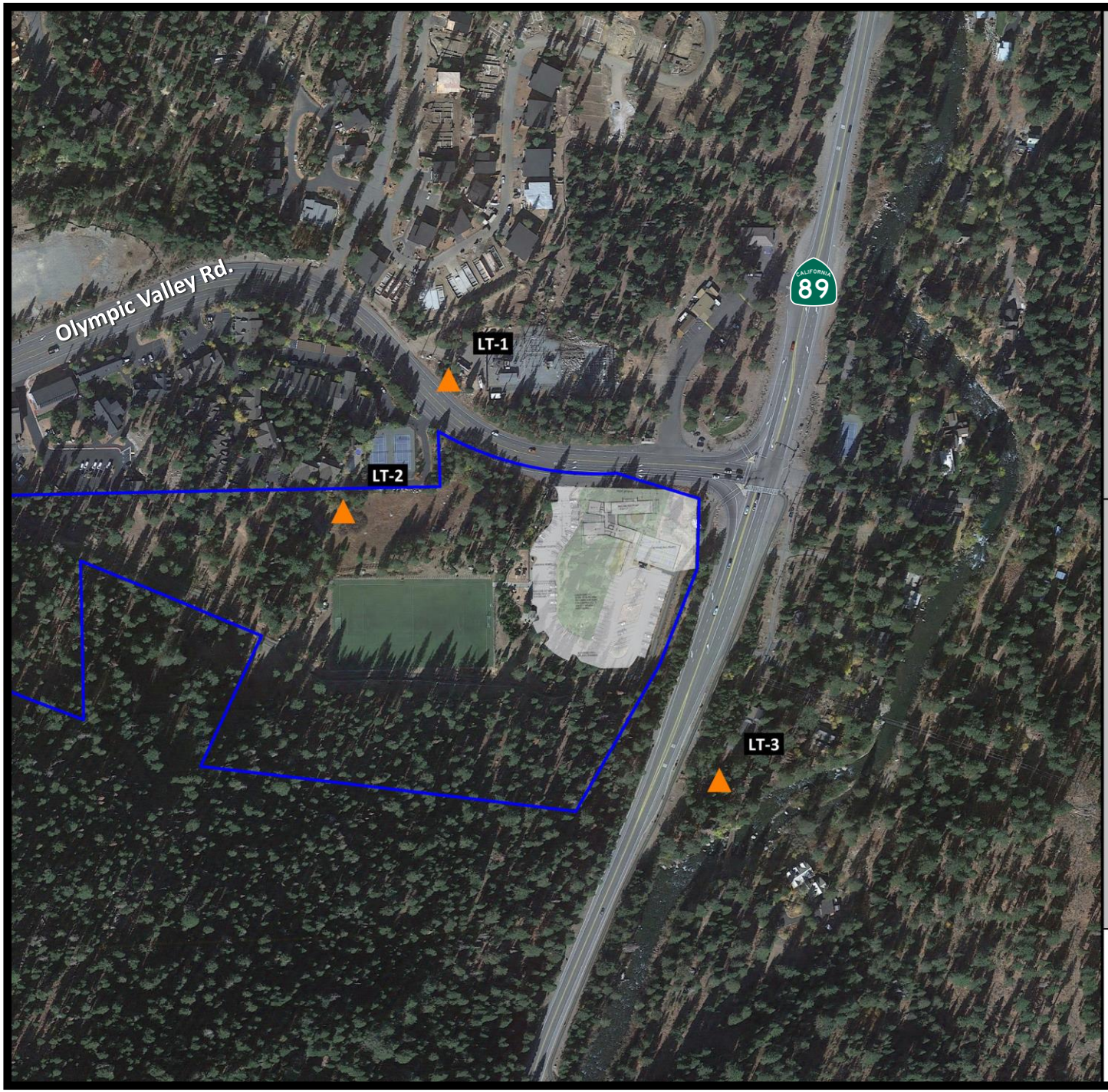

SNOW Museum Project

Placer County, California

Figure 2

Noise Measurement Sites

Legend

- Project Site
- Noise Measurement Site - Long Term

0 ft 250 ft 500 ft

Projection: UTM Zone 10 / WGS84 / meters
Rev. Date: 10/26/2022

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The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level ($_{DN}L$ or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING AND FUTURE NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses include existing single-family residential uses located west and east of the project site.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing ambient noise environment in the project vicinity is primarily defined by traffic on SR 89. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at three locations on the project. Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 820 integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a CAL 200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Location	Date	L_{dn}	Daytime L_{eq}	Daytime L_{50}	Daytime L_{max}	Nighttime L_{eq}	Nighttime L_{50}	Nighttime L_{max}
LT-1: 770 ft. to CL of SR 89.	5/5/22	64	62	55	77	57	46	74
	5/6/22	64	63	57	77	55	45	75
	5/7/22	63	62	55	79	54	44	73
	5/8/22	63	63	52	78	54	42	71
	5/9/22	61	63	50	78	47	37	67
	5/10/22	61	62	51	78	50	36	71
	5/11/22	61	61	53	79	52	39	68
	Average	62.4	62.3	53.3	78.0	52.7	41.3	71.3
LT-2: 900 ft. to CL of SR 89.	5/5/22	54	51	49	64	47	44	58
	5/6/22	52	49	47	62	46	43	58
	5/7/22	50	57	45	63	43	41	56
	5/8/22	49	47	43	61	42	38	57
	5/9/22	45	44	39	62	36	32	51
	5/10/22	45	44	39	62	36	32	51
	5/11/22	45	45	42	60	36	31	50
	Average	48.6	47.2	43.4	62.0	40.9	37.3	54.4
LT-3: 140 ft. to CL of SR 89.	5/5/22	63	59	58	70	56	56	65
	5/6/22	63	59	58	71	57	56	66
	5/7/22	63	58	56	68	56	56	67
	5/8/22	62	57	55	67	55	54	68
	5/9/22	60	56	53	68	53	52	63
	5/10/22	57	54	52	67	50	50	58
	5/11/22	60	57	55	68	52	51	62
	Average	61.1	57.7	55.3	68.4	54.1	53.6	64.1

Notes:

- *All values shown in dBA*
- *Daytime hours: 7:00 a.m. to 10:00 p.m.*
- *Nighttime Hours: 10:00 p.m. to 7:00 a.m.*
- *Source: Saxelby Acoustics 2022*

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

Off-Site Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing and Cumulative noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer (LSC Transportation Consultants, Inc 2022), truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing and Cumulative conditions which would result from the project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers or may be located at distances which vary from the assumed calculation distance.

Tables 3 and 4 summarizes the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the Project area. **Appendix C** provides the complete inputs and results of the FHWA traffic modeling.

Table 3: Predicted Traffic Noise Level and Project-Related Traffic Noise Level Increases

Roadway	Segment	Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors		
		Existing No Project	Existing + Project	Change
SR 89	North of Squaw Valley	57.2	57.2	0.0
SR 89	South of Squaw Valley	58.2	58.2	0.0

Table 4: Cumulative Traffic Noise Level and Project-Related Traffic Noise Level Increases

Roadway	Segment	Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors		
		Cumulative No Project	Cumulative + Project	Change
SR 89	North of Squaw Valley	59.4	59.4	0.0
SR 89	South of Squaw Valley	60.2	60.2	0.0

EVALUATION OF PROJECT OPERATIONAL NOISE AT RESIDENTIAL RECEPTORS

Loading Dock and Truck Circulation Noise Generation

To determine typical noise levels associated with the proposed loading docks, noise level measurement data from a Wal-Mart loading dock was utilized. This data is conservative considering that the Walmart loading dock supports a much larger facility than the proposed project. As such, the noise analysis completed for the loading dock noise is considered a worst-case scenario.

The noise level measurements were conducted at a distance of 100 feet from the center of the two-bay loading dock and circulation area. Activities during the peak hour of loading dock activities included truck arrival/departures, truck idling, truck backing alarms, air brake release, and operation of truck-mounted refrigeration units.

The results of the worst-case loading dock noise measurements indicate that a busy hour generated an average noise level of 61 dBA L_{eq} at a distance of 100 feet from the center of the loading dock truck maneuvering lanes. This analysis assumes that the proposed loading docks could operate at this level of activity only during daytime hours (7:00 a.m. to 10:00 p.m.).

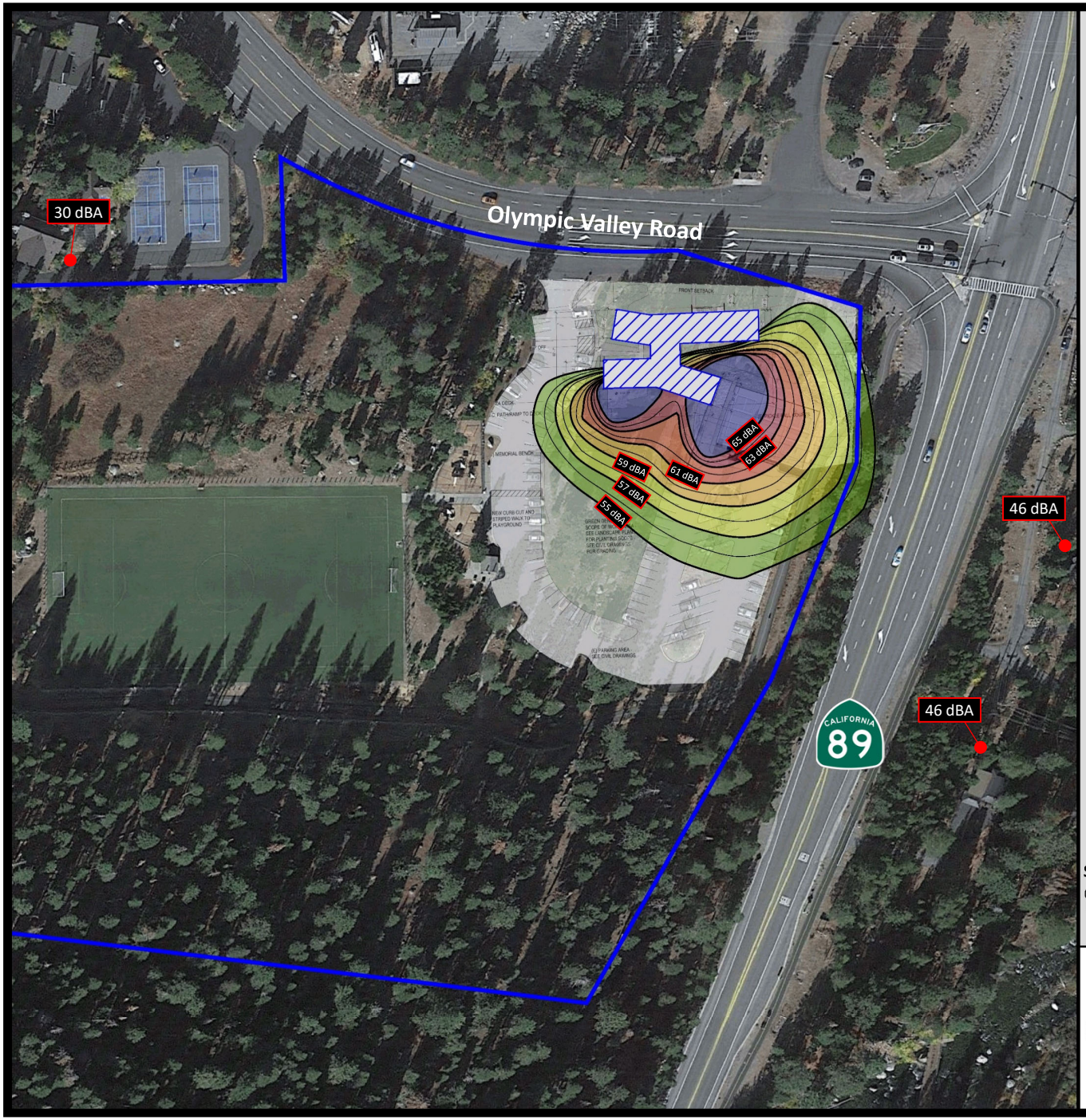
Parking Lot Circulation

Saxelby Acoustics assumed a peak hour movement of 41 vehicles on site (LSC Transportation Consultants, Inc). Based upon noise measurements conducted of vehicle movements in parking lots, the sound exposure level (SEL) for a single passenger vehicle is 71 dBA at a distance of 50 feet.

Event Patio

Saxelby Acoustics assumed 100 people vocalizing at an individual "raised speech" level of 60 dBA L_{eq} at 6 feet (Long, 2014). Based on this individual level, the total L_{eq} for all 100 people was assumed to be 80 dBA L_{eq} at 6 feet. The Event Patio is estimated to exclusively operate during the daytime hours (7:00 a.m. to 10:00 p.m.).

Saxelby Acoustics used the SoundPLAN noise model to calculate noise levels at the nearest sensitive receptors. Input data included the loading docks, parking lot noise generation, event noise, and pickleball activity as discussed above. The project noise level contours for the daytime (7:00 a.m. to 10:00 p.m.) average (L_{eq}) and day/night average (L_{dn}) are shown in **Figure 3** and **Figure 4**, respectively.



SNOW Museum Project

Placer County, California

Figure 3

Daytime Project Noise Contours (dBA L_{eq})

Noise Level, dB(A)	
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	

Legend

- Project Building
- Project Boundary

Scale 1:150

0 30 60 120 180 240 feet

N

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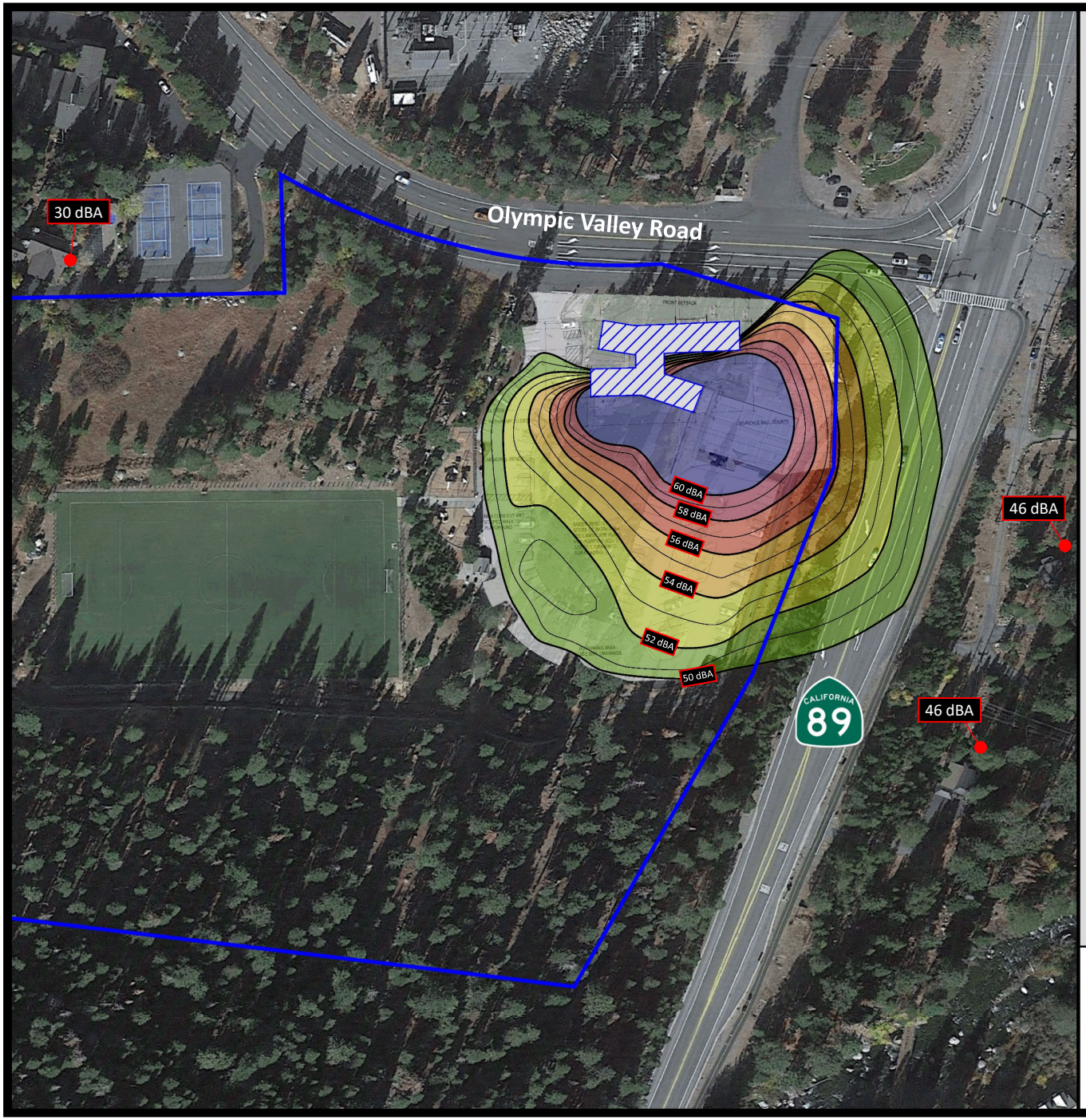

SNOW Museum Project

Placer County, California

Figure 4

Daytime Project Noise Contours (dBA L_{dn})

Noise Level, dB(A)	
50 <	<= 52
52 <	<= 54
54 <	<= 56
56 <	<= 58
58 <	<= 60
60 <	

Legend

- Project Building
- Project Boundary

Scale 1:156

0 30 60 120 180 240 feet

N

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CONSTRUCTION NOISE ENVIRONMENT

The Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) was used to predict noise levels for standard construction equipment used for roadway improvement projects. The assessment of potential significant noise effects due to construction is based on the standards and procedures described in the Federal Transit Authority (FTA) guidance manual and FHWA's RCNM.

The RCNM is a Windows-based noise prediction model that enables the prediction of construction noise levels for a variety of construction equipment based on a compilation of empirical data and the application of acoustical propagation formulas. It enables the calculation of construction noise levels in more detail than the manual methods, which eliminates the need to collect extensive amounts of project-specific input data. RCNM allows for the modeling of multiple pieces of construction equipment working either independently or simultaneously, the character of noise emission, and the usage factors for each piece of equipment.

Construction noise varies depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week), and the duration of the construction work.

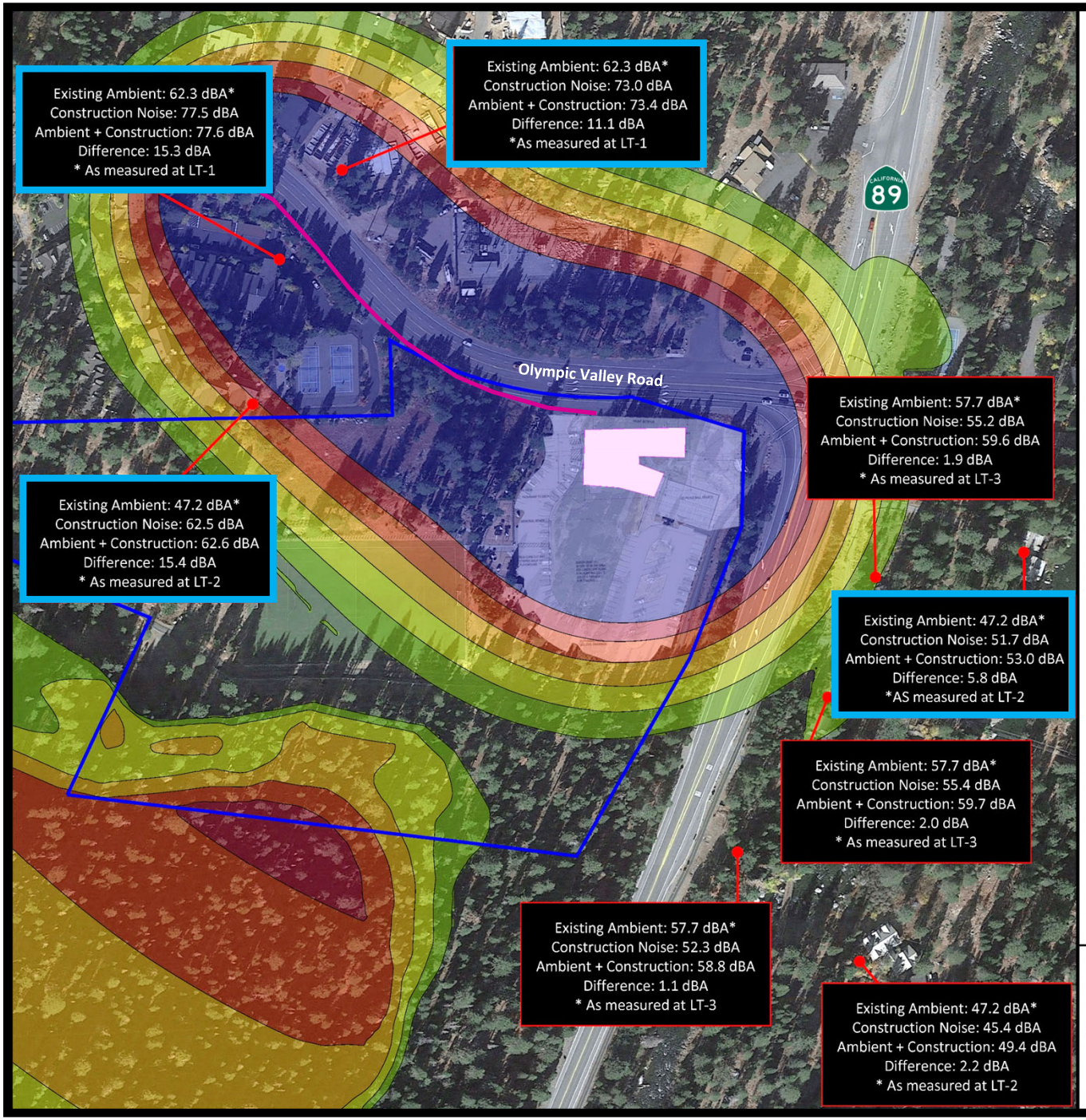
Noise sources in the RCNM database include actual noise levels and equipment usage percentages. This source data was used in this construction noise analysis. **Table 7** shows predicted construction noise levels for each of the project construction phases.

TABLE 5: CONSTRUCTION EQUIPMENT NOISE LEVELS FOR PRIMARY CONSTRUCTION PHASES

Equipment	Quantity	Usage (%)	Maximum, Lmax (dBA at 50 feet)	Hourly Average, Leq (dBA at 50 feet)
Demolition/Off Site Sewer				
Concrete Saw	1	20	90	83
Dozer	1	40	82	78
Tractor/Loader/Backhoe	2	40	84	83
			Total:	**87**
Site Preparation				
Grader	1	40	85	81
Tractor/Loader/Backhoe	1	40	84	80
			Total:	**84**
Grading				
Grader	1	40	85	81
Dozer	1	40	82	78
Tractor/Loader/Backhoe	1	40	84	80
			Total:	**85**
Building Construction				
Crane	1	16	81	73
Fork Lift	2	40	83	82
Tractor/Loader/Backhoe	2	40	84	83
			Total:	**86**
Paving				
Concrete Mixer Truck	4	40	79	81
Paver	1	50	77	74
Roller	1	20	80	73
Tractor/Loader/Backhoe	1	40	84	80
			Total:	**84**
Architectural Coating				
Air Compressor	1	40	79	75
			Total:	**75**

Source: FHWA, Roadway Construction Noise Model (RCNM), January 2006.

Based upon the **Table 5** data, the loudest phase of construction with an average noise exposure of 87 dBA L_{eq} at 50 feet would occur during demolition activities. The next loudest phase would be building construction at 85 dBA L_{eq} at 50 feet. The results of the construction noise analysis are shown graphically on **Figure 5**.



SNOW Museum Project

Placer County, California

Figure 5

Construction Noise Contours (dBA L_{eq})

Noise Level, dB(A)

55 <		<=	57
57 <		<=	59
59 <		<=	61
61 <		<=	63
63 <		<=	65
65 <			

Legend

- Park Boundary
- Receptor
- Off Site Sewer Line (Approx. Location)

Scale 1:245

0 50 100 200 300 400 feet

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CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 6** shows the typical vibration levels produced by construction equipment.

TABLE 6: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: Transit Noise and Vibration Impact Assessment Guidelines. Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed below under the Thresholds of Significance section.

LOCAL

Placer County General Plan

The Placer County General Plan Noise Element outlines criteria for "non-transportation" or "locally regulated" noise sources. The noise level performance standards for non-transportation noise in Placer County are shown in **Table 7**.

TABLE 7: NOISE LEVEL PERFORMANCE STANDARDS, L_{DN}, FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION NOISE SOURCES

Zone District of Receptor	Property Line of Receiving Use	Interior Spaces
Residential Adjacent to Industrial	60	45
Other Residential	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45
Limited Industrial	75	45
Highway Service	75	45
Shopping Center	70	45
Industrial	--	45
Industrial Park	75	45
Industrial Reserve	--	--
Airport	--	45
Unclassified	--	--
Farm	(see footnote)	--
Agriculture Exclusive	(see footnote)	--
Forestry	-	--
Timberland Preserve	--	--
Recreation & Forestry	70	--
Open Space	--	--
Mineral Reserve	--	--

Normally, agricultural uses are noise insensitive and will be treated in this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones is a concern, an L_{dn} of 70 dBA will be considered acceptable outdoor exposure at a residence.

Placer County Municipal Code

The Placer County Noise Ordinance (Article 9.36.060 Sound limits for sensitive receptors of the Placer County Code) defines sound level performance standards for sensitive receptors (**Table 8**). The ordinance states that it is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied, or otherwise controlled by such a person that causes the exterior sound level, when measured at the property line of any affected sensitive receptor, to exceed the ambient sound level by 5 dBA or exceed the sound level standards as set forth in **Table 8**, whichever is greater.

Each of the sound level standards specified in **Table 8** shall be reduced by 5 dBA for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus 5 dBA.

TABLE 8: PLACER COUNTY NOISE ORDINANCE NOISE LEVEL STANDARDS FOR SENSITIVE RECEPTORS

Sound Level Descriptor	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
Hourly L_{eq}, dB	55	45
Maximum Level L_{max}, dB	70	65

Per Section 9.36.030 of the Placer County Code (Exemptions), sound or noise emanating from construction activities between the hours of 6:00 AM and 8:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday, is exempt from Section 9.36.060 of the Placer County Code Noise Ordinance, provided that all construction equipment is fitted with factory installed muffling devices and that all construction equipment is maintained in good working order.

Criteria for Acceptable Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 9**, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

TABLE 9: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" dam age and possibly minor structural damage

Source: Transportation Related Earthborne Vibrations. Caltrans. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-f]).

Would the project:

a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Generate excessive groundborne vibration or groundborne noise levels?

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The California Environmental Quality Act (CEQA) guidelines define a significant impact of a project if it "increases substantially the ambient noise levels for adjoining areas." Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project-noise conditions. **Table 10** is based upon recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}.

TABLE 10: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level Without Project, L_{dn}	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

Based on the **Table 10** data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn}, or 3 dB or more where existing noise levels are between 60 to 65 dB L_{dn}. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB L_{dn}. The rationale for the **Table 10** criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

Noise Level Increase Criteria for Short-Term Project-Related Noise Level Increases

Placer County has no specific threshold for evaluating noise increases due to short-term construction projects. The Placer County code Section 9.36.030 exempts sound or noise emanating from construction activities between the hours of 6:00 AM and 8:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday, provided that all construction equipment is fitted with factory installed muffling devices and that all construction equipment is maintained in good working order.

For CEQA purposes Saxelby Acoustics recommended using a 5.0 dBA increase threshold for evaluating construction-related noise increases. This is consistent with the Placer County code which limits noise increases to 5.0 dBA over ambient.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 1: Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Traffic Noise Increases at Off-Site Receptors

As discussed, the substantial increase criteria range between +1.5 dBA to +5 dBA, depending on the existing noise levels. Under the proposed project, the maximum increase in traffic noise at the nearest sensitive receptor is predicted to be 0.0 dBA as shown in **Tables 3 and 4**.

Therefore, impacts resulting from increased traffic noise would be considered ***less-than-significant***.

Operational Noise at Sensitive Receptors

The Placer County noise level standards require that new projects in the vicinity of existing sensitive receptors generate noise levels no greater than 55 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours and a day/night average of 50 dBA L_{dn}.

As shown in **Figure 3,** the proposed project is predicted to comply with the County's daytime (7:00 a.m. to 10:00 p.m.) L_{eq} noise level standards without any additional noise control measures.

As shown in **Figure 4,** the proposed project is predicted to comply with the County's non-transportation day/night average L_{dn} noise level standards without any additional noise control measures.

The project will comply with the County's daytime L_{eq} and the County's non-transportation day/night average L_{dn} standard. Therefore, impacts resulting from operational noise would be considered ***less-than-significant.***

Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. Based on **Figure 5**, the proposed project is predicted to generate construction noise levels ranging between 45.4-77.5 dBA L_{eq} at the nearest noise-sensitive receptors. Average daytime (L_{eq}) ambient noise levels were found to be between approximately 47.2-62.3 dBA L_{eq} in the vicinity of these uses. Therefore, the proposed project construction could result in periods of typical construction noise of up to +15.3 dBA higher than ambient noise in the project area.

The Placer County Municipal Code limits hours of construction activities when construction is located 500 feet or closer to a residential zone. Construction is limited to between the hours of 6:00 AM and 8:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday.

Construction activities could result in periods of noise which exceed existing noise levels by up to 15 dBA. This exceeds the 5 dBA increase criteria recommended for CEQA evaluation of short-term noise increases due to construction activity.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise including off-site sewer improvements, could result in disturbance to existing noise-sensitive land uses in the project vicinity Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered ***potentially significant***.

Therefore, additional noise control measures would be required to limit the noise increase to 5 dBA, or less. In order to reduce construction noise levels, evaluation of the use of temporary noise barriers was modeled. The results of the construction noise analysis are shown graphically on **Figure 6**. The Figure 6 data indicate that use of temporary noise barriers can be used to limit construction noise increases to less than 5 dBA at sensitive receptors located around the project site.

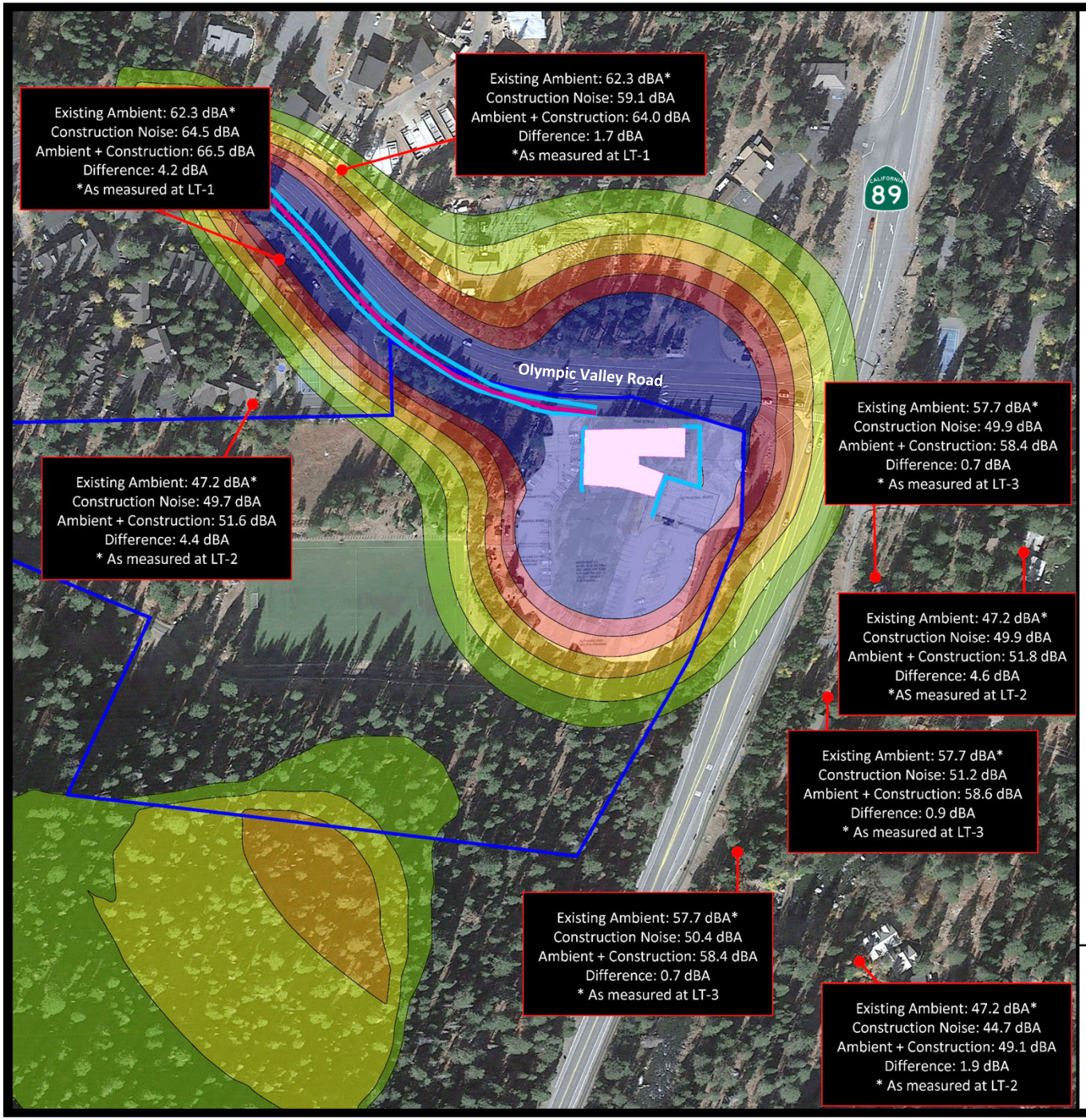
Mitigation Measure

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

1a: Prior to issuance of a grading permit, the project applicant shall prepare a construction noise management plan that identifies measures to be taken to minimize construction noise on surrounding sensitive land uses and include specific noise management measures to be included within the project plans and specifications, subject to review and approval by the County Planning Division. The project applicant shall demonstrate, to the satisfaction of the County that the project complies with the following:

- *Construction activities shall only take place between the hours limited 6:00 a.m. to 8:00 p.m. on weekdays, and 8:00 a.m. to 8:00 p.m. on Saturday and Sunday.*
- *All heavy construction equipment used on the proposed project shall be maintained in good operating condition, with all internal combustion, engine-driven equipment fitted with intake and exhaust mufflers that are in good condition.*

- *All mobile or fixed noise producing equipment used on the proposed project that is regulated for noise output by a local, state, or federal agency shall comply with such regulations while in the source of project activity.*
- *Where feasible, electrically-powered equipment shall be used instead of pneumatic or internal combustion powered equipment.*
- *All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines.*
- *Signs prohibiting unnecessary idling of internal combustion engines shall be posted.*
- *The use of noise-producing signals, including horns, whistles, alarms and bells shall be for safety warning purposes only.*
- *The proposed project shall incorporate use 8-foot-tall temporary sound barriers along the west and east boundaries of the construction site. The approximate locations of the sound wall is shown on* ***Figure 6.*** *The sound barrier fencing should consist of ½" plywood or minimum STC 27 sound curtains placed to shield nearby sensitive receptors. The plywood barrier should be free from gaps, openings, or penetrations to ensure maximum performance.*
- *The proposed project shall incorporate use of 6-foot-tall temporary sound barriers along the north and south sides of the off-site sewer improvement route. The approximate locations of the sound walls are shown on* ***Figure 6.*** *The sound barrier fencing should consist of ½" plywood or minimum STC 27 sound curtains placed to shield nearby sensitive receptors. The plywood barrier should be free from gaps, openings, or penetrations to ensure maximum performance.*



SNOW Museum Project

Placer County, California

Figure 6

Construction Noise Contours (dBA L_{eq}) – with Temporary Sound Walls

Noise Level, dB(A)

55 <	<=	57
57 <	<=	59
59 <	<=	61
61 <	<=	63
63 <	<=	65
65 <		

Legend

- Park Boundary
- Receptor
- Temporary Sound Wall
- Off Site Sewer Line (Approx. Location)

Scale 1:245

0 50 100 200 300 400 feet

N

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Impact 2: ***Would the project generate excessive groundborne vibration or groundborne noise levels?***

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

The **Table 4** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet. The proposed project on-site construction would occur at distances of 250 feet, or more, from the nearest adjacent single-family residential uses. Off-site sewer improvements would occur at a distance of approximately 50 feet, or more. At these distances construction vibrations are not predicted to exceed the 0.2 in/sec threshold. Therefore, this is a ***less-than-significant*** impact.

Impact 3: ***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

There are no airports within 2 miles of the project site. Therefore, this impact is not applicable to the proposed project.

REFERENCES

American National Standards Institute. (1998). *[Standard] ANSI S1.43-1997 (R2007): Specifications for integrating-averaging sound level meters*. New York: Acoustical Society of America.

American Standard Testing Methods, *Standard Guide for Measurement of Outdoor A-Weighted Sound Levels, American Standard Testing Methods (ASTM) E1014-08*, 2008.

ASTM E1014-12. *Standard Guide for Measurement of Outdoor A-Weighted Sound Levels*. ASTM International. West Conshohocken, PA. 2012.

ASTM E1780-12. *Standard Guide for Measuring Outdoor Sound Received from a Nearby Fixed Source.* ASTM International. West Conshohocken, PA. 2012.

Barry, T M. (1978). *FHWA highway traffic noise prediction model* (FHWA-RD-77-108). Washington, DC: U.S. Department of transportation, Federal highway administration, Office of research, Office of environmental policy.

California Department of Transportation (Caltrans), *Technical Noise Supplement, Traffic Noise Analysis Protocol*, September 2013.

Egan, M. D. (1988). Architectural acoustics. United States of America: McGraw-Hill Book Company.

Federal Highway Administration. *FHWA Roadway Construction Noise Model User's Guide.* FHWA-HEP-05-054 DOT-VNTSC-FHWA-05-01. January 2006.

Hanson, Carl E. (Carl Elmer). (2006). *Transit noise and vibration impact assessment*. Washington, DC: U.S. Department of Transportation, Federal Transit Administration, Office of Planning and Environment.

International Electrotechnical Commission. Technical committee 29: Electroacoustics. International Organization of Legal Metrology. (2013). *Electroacoustics: Sound level meters*.

International Organization for Standardization. (1996). *Acoustic - ISO 9613-2: Attenuation of sound during propagation outdoors. Part 2: General methods of calculation*. Ginevra: I.S.O.

Long, M. (2006). *Architectural acoustics*. Academic Press.

Miller, L. N., Bolt, Beranek, & and Newman, Inc. (1981). *Noise control for buildings and manufacturing plants*. Cambridge, MA: Bolt, Beranek and Newman, Inc.

SoundPLAN. SoundPLAN GmbH. Backnang, Germany. http://www.soundplan.eu/english/

Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

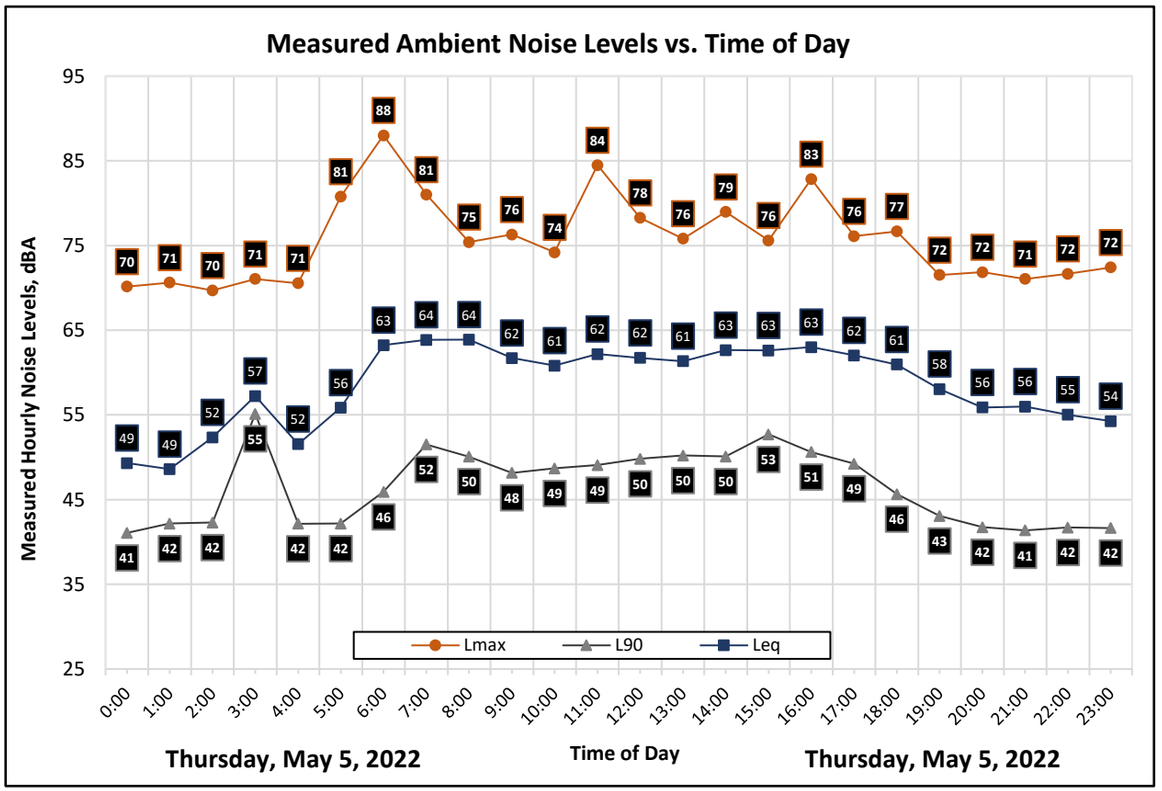
Appendix B: Continuous Ambient Noise Measurement Results

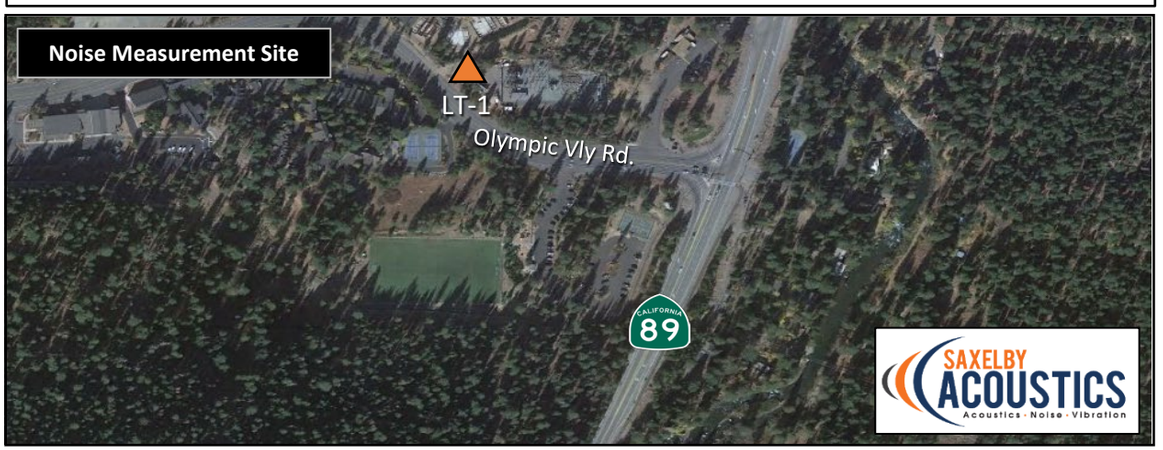
Appendix B1a: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, May 5, 2022	0:00	49	70	42	41
Thursday, May 5, 2022	1:00	49	71	43	42
Thursday, May 5, 2022	2:00	52	70	44	42
Thursday, May 5, 2022	3:00	57	71	56	55
Thursday, May 5, 2022	4:00	52	71	43	42
Thursday, May 5, 2022	5:00	56	81	44	42
Thursday, May 5, 2022	6:00	63	88	54	46
Thursday, May 5, 2022	7:00	64	81	60	52
Thursday, May 5, 2022	8:00	64	75	60	50
Thursday, May 5, 2022	9:00	62	76	55	48
Thursday, May 5, 2022	10:00	61	74	55	49
Thursday, May 5, 2022	11:00	62	84	57	49
Thursday, May 5, 2022	12:00	62	78	58	50
Thursday, May 5, 2022	13:00	61	76	57	50
Thursday, May 5, 2022	14:00	63	79	58	50
Thursday, May 5, 2022	15:00	63	76	60	53
Thursday, May 5, 2022	16:00	63	83	59	51
Thursday, May 5, 2022	17:00	62	76	58	49
Thursday, May 5, 2022	18:00	61	77	55	46
Thursday, May 5, 2022	19:00	58	72	48	43
Thursday, May 5, 2022	20:00	56	72	46	42
Thursday, May 5, 2022	21:00	56	71	45	41
Thursday, May 5, 2022	22:00	55	72	44	42
Thursday, May 5, 2022	23:00	54	72	44	42

Statistics	Leq	Lmax	L50	L90
Day Average	62	77	55	48
Night Average	57	74	46	44
Day Low	56	71	45	41
Day High	64	84	60	53
Night Low	49	70	42	41
Night High	63	88	56	55
Ldn	64	Day %		85
CNEL	64	Night %		15



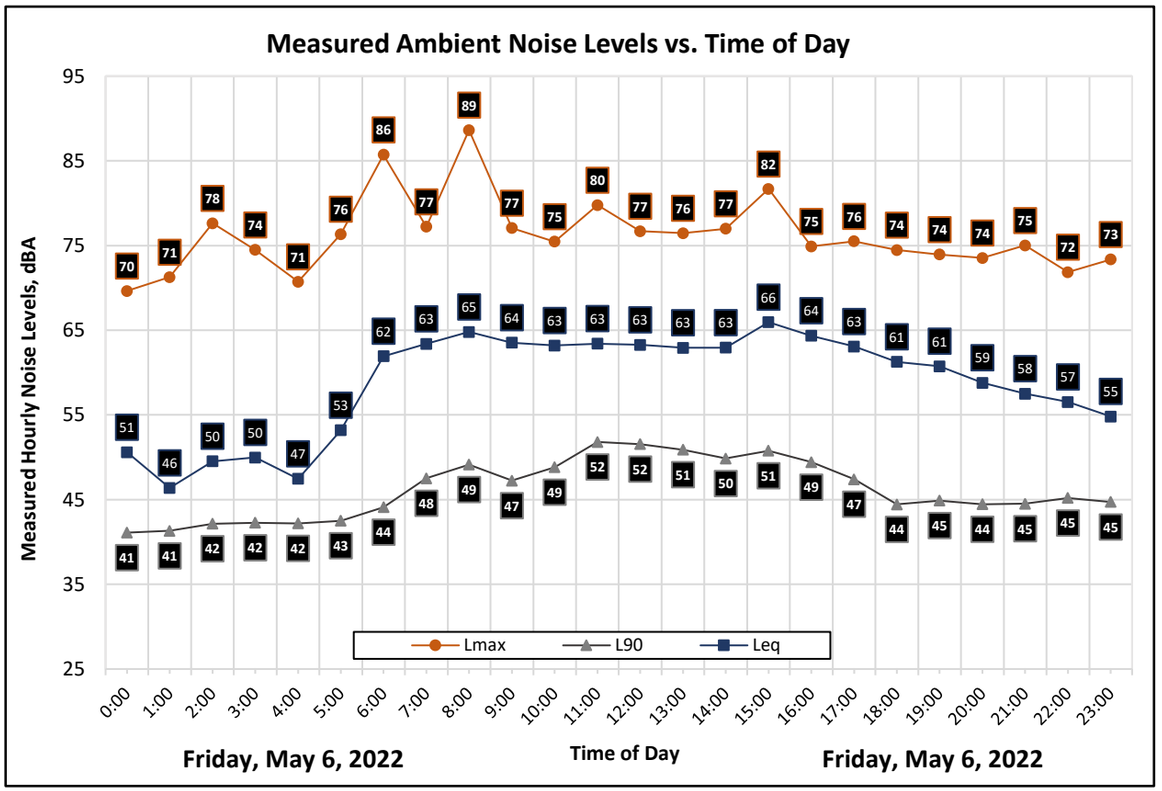


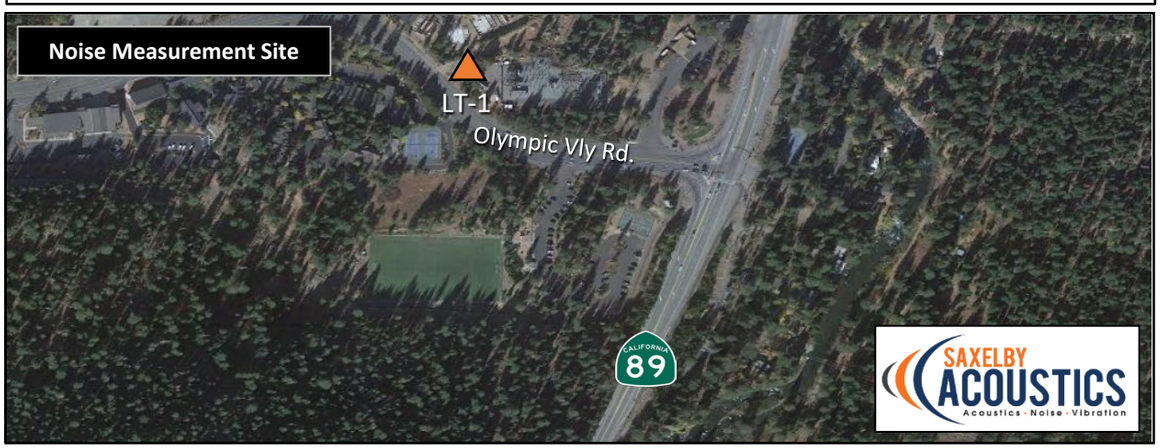
Appendix B1b: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Friday, May 6, 2022	0:00	51	70	42	41
Friday, May 6, 2022	1:00	46	71	42	41
Friday, May 6, 2022	2:00	50	78	43	42
Friday, May 6, 2022	3:00	50	74	43	42
Friday, May 6, 2022	4:00	47	71	43	42
Friday, May 6, 2022	5:00	53	76	44	43
Friday, May 6, 2022	6:00	62	86	50	44
Friday, May 6, 2022	7:00	63	77	57	48
Friday, May 6, 2022	8:00	65	89	60	49
Friday, May 6, 2022	9:00	64	77	58	47
Friday, May 6, 2022	10:00	63	75	59	49
Friday, May 6, 2022	11:00	63	80	60	52
Friday, May 6, 2022	12:00	63	77	60	52
Friday, May 6, 2022	13:00	63	76	60	51
Friday, May 6, 2022	14:00	63	77	60	50
Friday, May 6, 2022	15:00	66	82	64	51
Friday, May 6, 2022	16:00	64	75	61	49
Friday, May 6, 2022	17:00	63	76	57	47
Friday, May 6, 2022	18:00	61	74	50	44
Friday, May 6, 2022	19:00	61	74	50	45
Friday, May 6, 2022	20:00	59	74	48	44
Friday, May 6, 2022	21:00	58	75	48	45
Friday, May 6, 2022	22:00	57	72	48	45
Friday, May 6, 2022	23:00	55	73	47	45

Statistics	Leq	Lmax	L50	L90
Day Average	63	77	57	48
Night Average	55	75	45	43
Day Low	58	74	48	44
Day High	66	89	64	52
Night Low	46	70	42	41
Night High	62	86	50	45
Ldn	64	Day %		92
CNEL	64	Night %		8



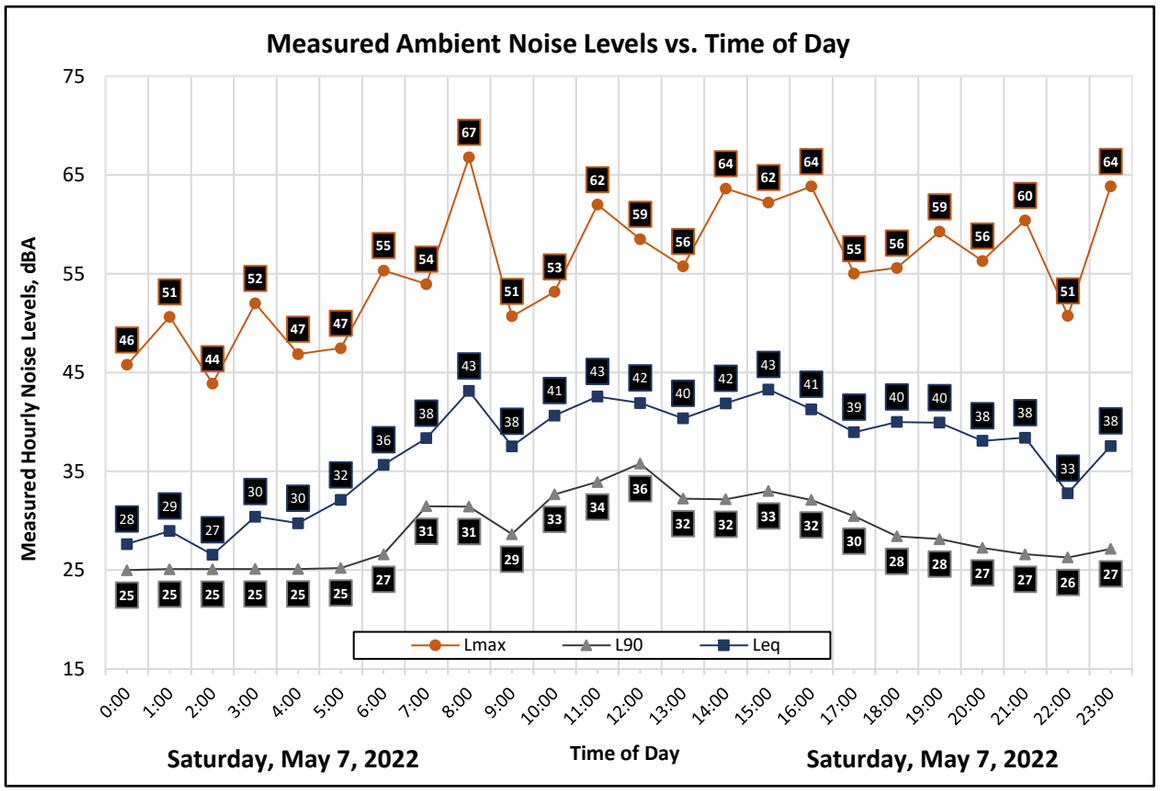


Appendix B1c: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, May 7, 2022	0:00	28	46	26	25
Saturday, May 7, 2022	1:00	29	51	26	25
Saturday, May 7, 2022	2:00	27	44	26	25
Saturday, May 7, 2022	3:00	30	52	26	25
Saturday, May 7, 2022	4:00	30	47	26	25
Saturday, May 7, 2022	5:00	32	47	26	25
Saturday, May 7, 2022	6:00	36	55	32	27
Saturday, May 7, 2022	7:00	38	54	37	31
Saturday, May 7, 2022	8:00	43	67	37	31
Saturday, May 7, 2022	9:00	38	51	35	29
Saturday, May 7, 2022	10:00	41	53	39	33
Saturday, May 7, 2022	11:00	43	62	39	34
Saturday, May 7, 2022	12:00	42	59	40	36
Saturday, May 7, 2022	13:00	40	56	39	32
Saturday, May 7, 2022	14:00	42	64	40	32
Saturday, May 7, 2022	15:00	43	62	40	33
Saturday, May 7, 2022	16:00	41	64	38	32
Saturday, May 7, 2022	17:00	39	55	37	30
Saturday, May 7, 2022	18:00	40	56	35	28
Saturday, May 7, 2022	19:00	40	59	36	28
Saturday, May 7, 2022	20:00	38	56	33	27
Saturday, May 7, 2022	21:00	38	60	30	27
Saturday, May 7, 2022	22:00	33	51	28	26
Saturday, May 7, 2022	23:00	38	64	29	27

Statistics	Leq	Lmax	L50	L90
Day Average	41	58	37	31
Night Average	33	51	27	26
Day Low	38	51	30	27
Day High	43	67	40	36
Night Low	27	44	26	25
Night High	38	64	32	27
Ldn	41	Day %		92
CNEL	42	Night %		8

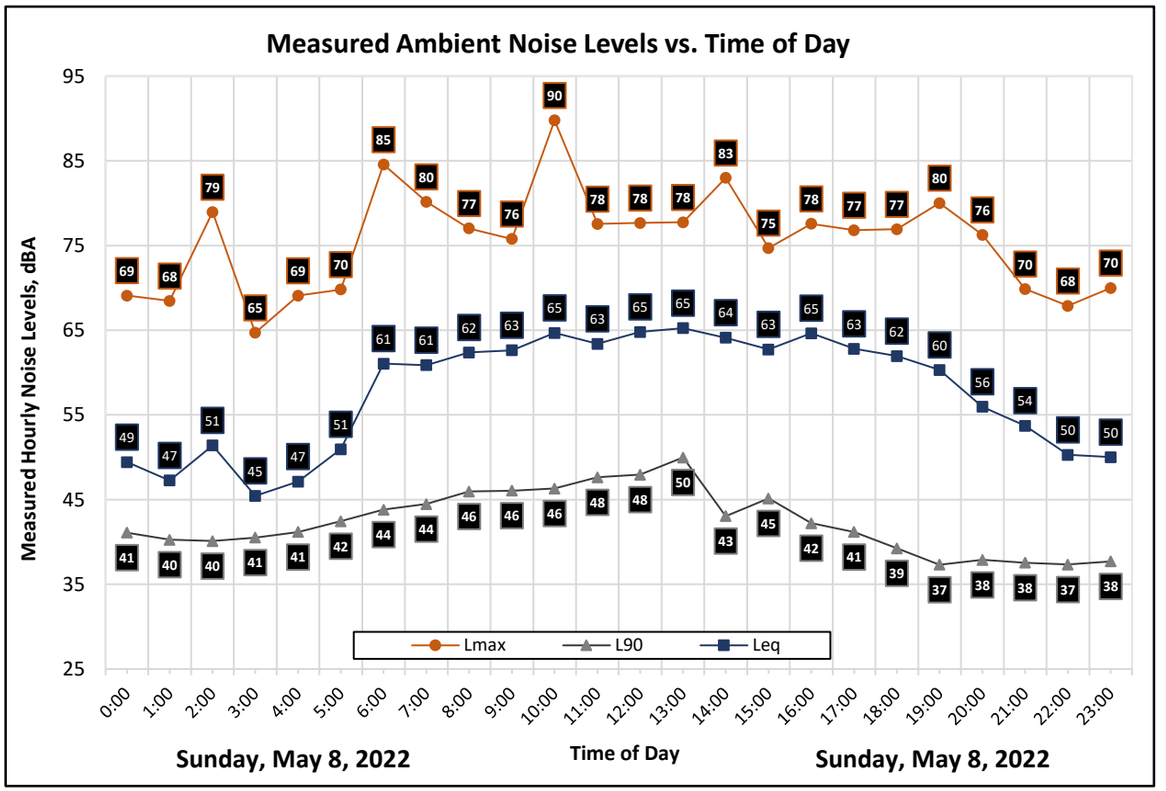


Appendix B1d: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, May 8, 2022	0:00	49	69	42	41
Sunday, May 8, 2022	1:00	47	68	42	40
Sunday, May 8, 2022	2:00	51	79	42	40
Sunday, May 8, 2022	3:00	45	65	42	41
Sunday, May 8, 2022	4:00	47	69	43	41
Sunday, May 8, 2022	5:00	51	70	45	42
Sunday, May 8, 2022	6:00	61	85	47	44
Sunday, May 8, 2022	7:00	61	80	50	44
Sunday, May 8, 2022	8:00	62	77	55	46
Sunday, May 8, 2022	9:00	63	76	57	46
Sunday, May 8, 2022	10:00	65	90	59	46
Sunday, May 8, 2022	11:00	63	78	60	48
Sunday, May 8, 2022	12:00	65	78	61	48
Sunday, May 8, 2022	13:00	65	78	63	50
Sunday, May 8, 2022	14:00	64	83	56	43
Sunday, May 8, 2022	15:00	63	75	56	45
Sunday, May 8, 2022	16:00	65	78	53	42
Sunday, May 8, 2022	17:00	63	77	47	41
Sunday, May 8, 2022	18:00	62	77	45	39
Sunday, May 8, 2022	19:00	60	80	40	37
Sunday, May 8, 2022	20:00	56	76	40	38
Sunday, May 8, 2022	21:00	54	70	40	38
Sunday, May 8, 2022	22:00	50	68	39	37
Sunday, May 8, 2022	23:00	50	70	39	38

Statistics	Leq	Lmax	L50	L90
Day Average	63	78	52	43
Night Average	54	71	42	40
Day Low	54	70	40	37
Day High	65	90	63	50
Night Low	45	65	39	37
Night High	61	85	47	44
Ldn	63	Day %		94
CNEL	63	Night %		6

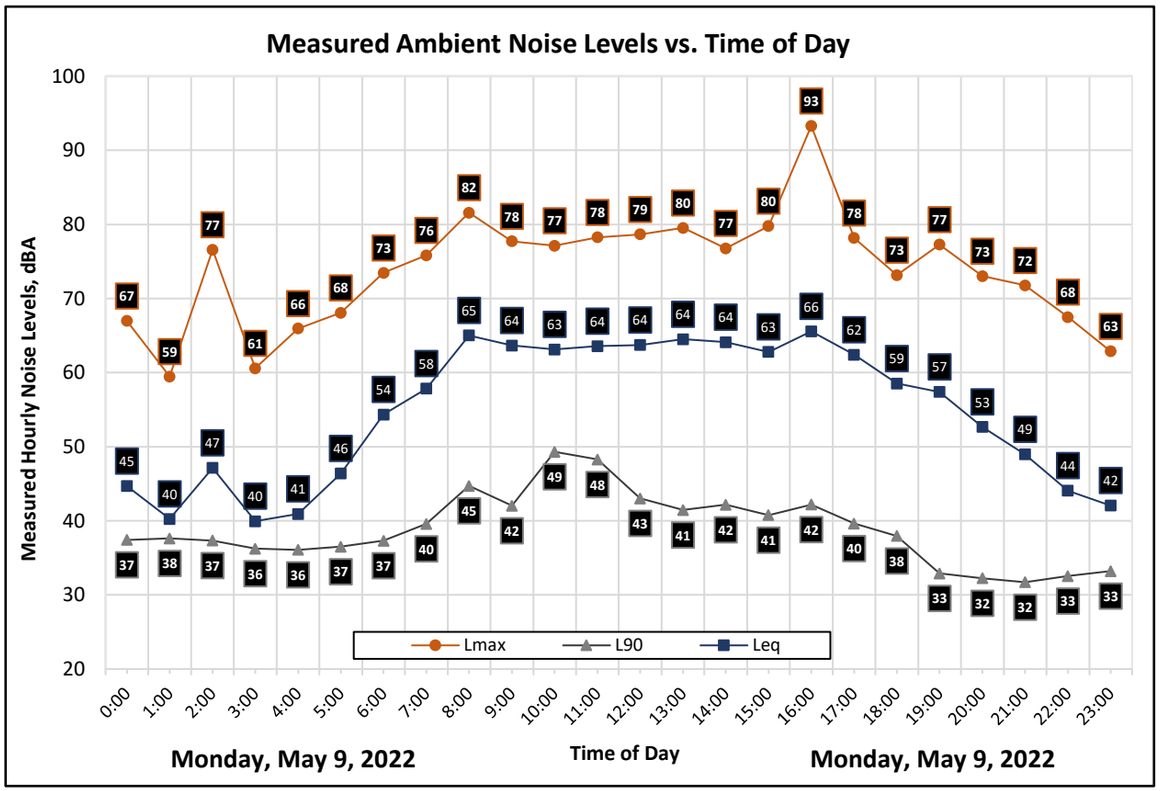


Appendix B1e: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, May 9, 2022	0:00	45	67	39	37
Monday, May 9, 2022	1:00	40	59	39	38
Monday, May 9, 2022	2:00	47	77	39	37
Monday, May 9, 2022	3:00	40	61	37	36
Monday, May 9, 2022	4:00	41	66	37	36
Monday, May 9, 2022	5:00	46	68	38	37
Monday, May 9, 2022	6:00	54	73	40	37
Monday, May 9, 2022	7:00	58	76	50	40
Monday, May 9, 2022	8:00	65	82	59	45
Monday, May 9, 2022	9:00	64	78	54	42
Monday, May 9, 2022	10:00	63	77	57	49
Monday, May 9, 2022	11:00	64	78	56	48
Monday, May 9, 2022	12:00	64	79	57	43
Monday, May 9, 2022	13:00	64	80	55	41
Monday, May 9, 2022	14:00	64	77	58	42
Monday, May 9, 2022	15:00	63	80	56	41
Monday, May 9, 2022	16:00	66	93	58	42
Monday, May 9, 2022	17:00	62	78	52	40
Monday, May 9, 2022	18:00	59	73	41	38
Monday, May 9, 2022	19:00	57	77	37	33
Monday, May 9, 2022	20:00	53	73	35	32
Monday, May 9, 2022	21:00	49	72	34	32
Monday, May 9, 2022	22:00	44	68	34	33
Monday, May 9, 2022	23:00	42	63	34	33

Statistics	Leq	Lmax	L50	L90
Day Average	63	78	50	41
Night Average	47	67	37	36
Day Low	49	72	34	32
Day High	66	93	59	49
Night Low	40	59	34	33
Night High	54	77	40	38
Ldn	61	Day %		98
CNEL	61	Night %		2

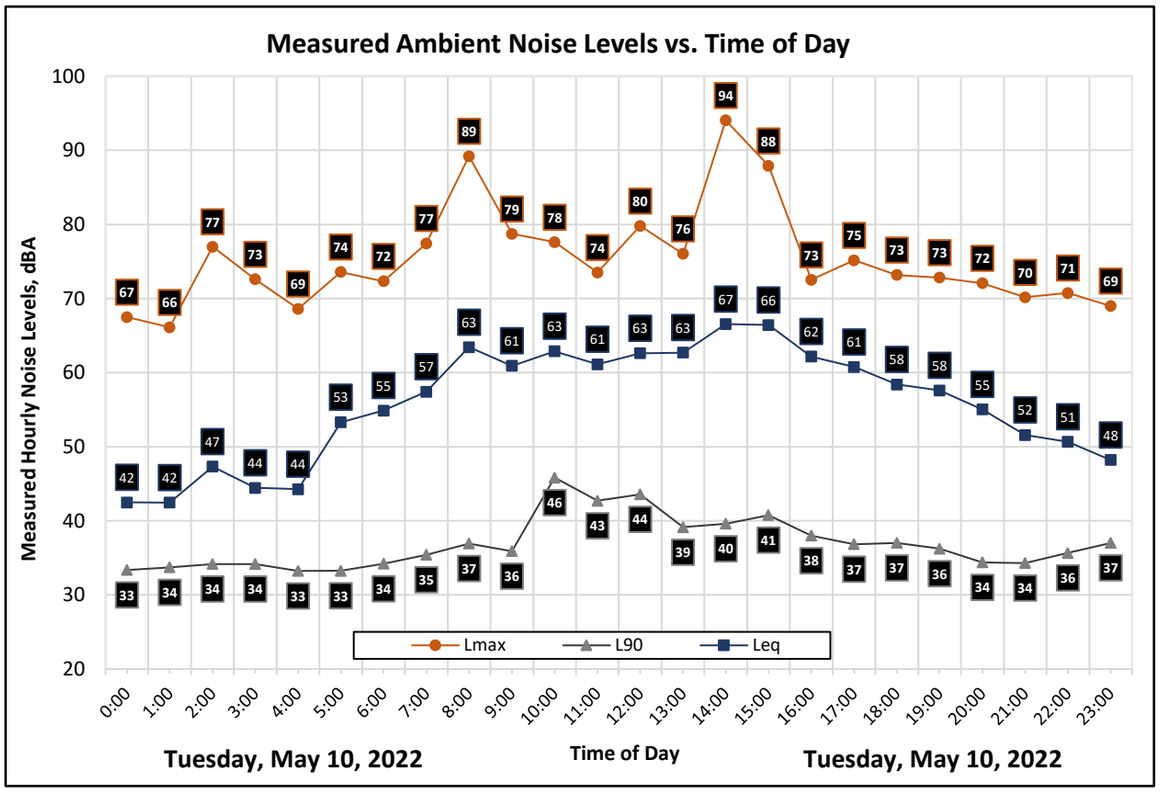


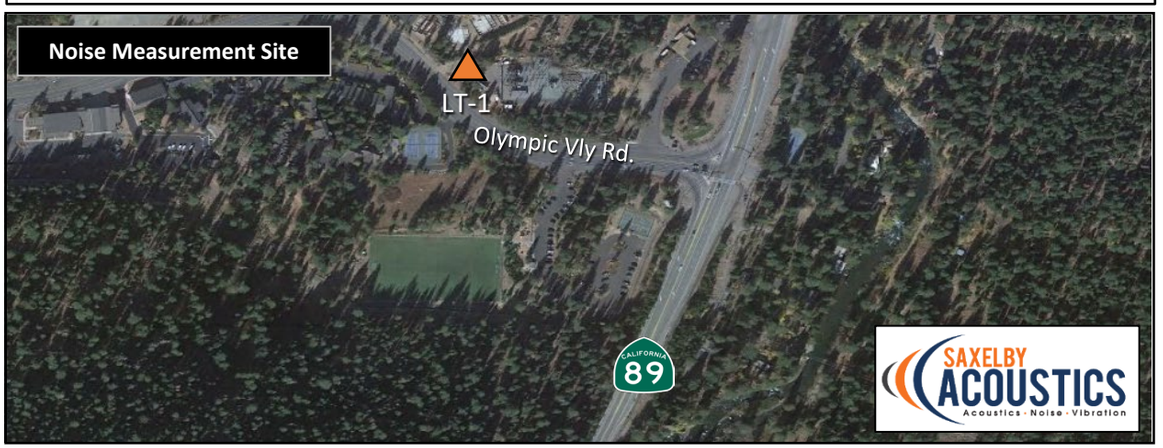
Appendix B1f: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, May 10, 2022	0:00	42	67	34	33
Tuesday, May 10, 2022	1:00	42	66	35	34
Tuesday, May 10, 2022	2:00	47	77	35	34
Tuesday, May 10, 2022	3:00	44	73	35	34
Tuesday, May 10, 2022	4:00	44	69	34	33
Tuesday, May 10, 2022	5:00	53	74	34	33
Tuesday, May 10, 2022	6:00	55	72	37	34
Tuesday, May 10, 2022	7:00	57	77	49	35
Tuesday, May 10, 2022	8:00	63	89	55	37
Tuesday, May 10, 2022	9:00	61	79	52	36
Tuesday, May 10, 2022	10:00	63	78	54	46
Tuesday, May 10, 2022	11:00	61	74	54	43
Tuesday, May 10, 2022	12:00	63	80	56	44
Tuesday, May 10, 2022	13:00	63	76	55	39
Tuesday, May 10, 2022	14:00	67	94	60	40
Tuesday, May 10, 2022	15:00	66	88	61	41
Tuesday, May 10, 2022	16:00	62	73	58	38
Tuesday, May 10, 2022	17:00	61	75	53	37
Tuesday, May 10, 2022	18:00	58	73	42	37
Tuesday, May 10, 2022	19:00	58	73	44	36
Tuesday, May 10, 2022	20:00	55	72	38	34
Tuesday, May 10, 2022	21:00	52	70	36	34
Tuesday, May 10, 2022	22:00	51	71	37	36
Tuesday, May 10, 2022	23:00	48	69	38	37

Statistics	Leq	Lmax	L50	L90
Day Average	62	78	51	38
Night Average	50	71	36	34
Day Low	52	70	36	34
Day High	67	94	61	46
Night Low	42	66	34	33
Night High	55	77	38	37
Ldn	61	Day %		97
CNEL	62	Night %		3



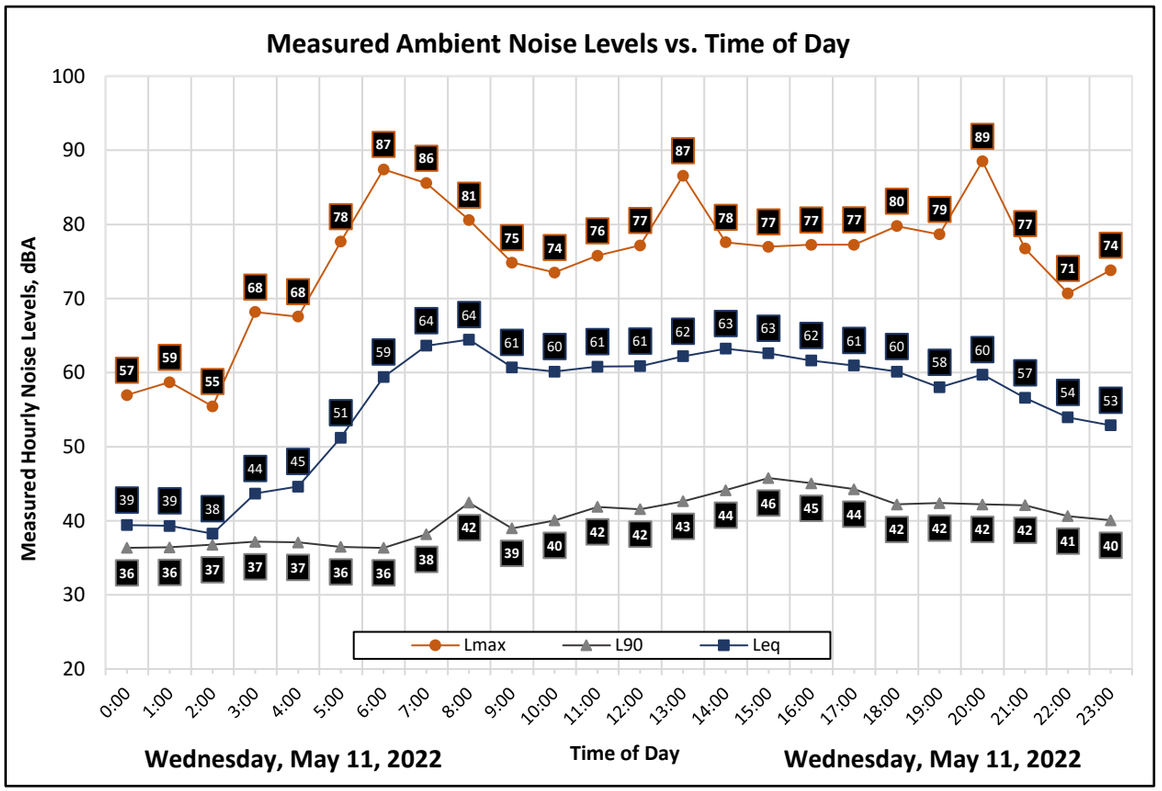


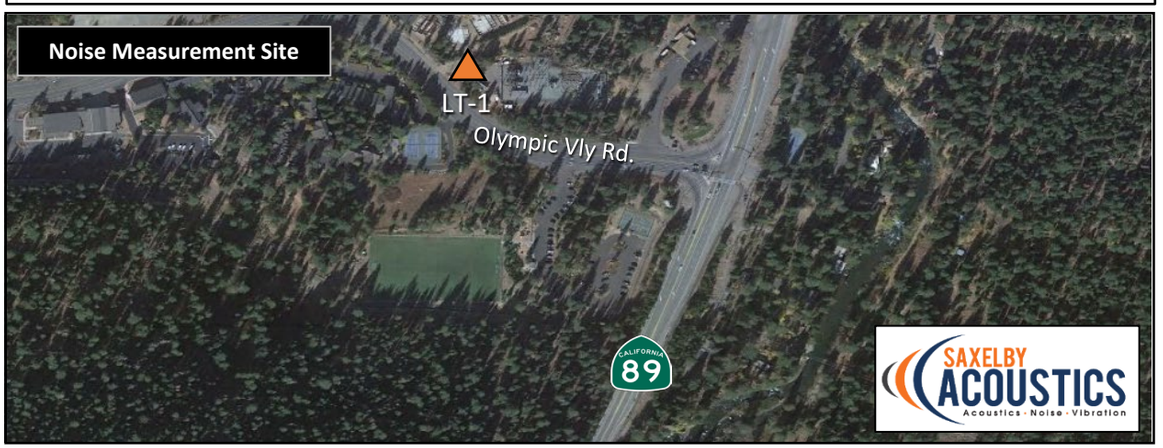
Appendix B1g: Continuous Noise Monitoring Results

Site: LT-1
Project: SNOW Museum Project
Location: Northern Project Boundary
Coordinates: 39.2054768°, -120.2019974°
Meter: LDL 820-6
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Wednesday, May 11, 2022	0:00	39	57	37	36
Wednesday, May 11, 2022	1:00	39	59	37	36
Wednesday, May 11, 2022	2:00	38	55	37	37
Wednesday, May 11, 2022	3:00	44	68	38	37
Wednesday, May 11, 2022	4:00	45	68	38	37
Wednesday, May 11, 2022	5:00	51	78	38	36
Wednesday, May 11, 2022	6:00	59	87	40	36
Wednesday, May 11, 2022	7:00	64	86	54	38
Wednesday, May 11, 2022	8:00	64	81	60	42
Wednesday, May 11, 2022	9:00	61	75	51	39
Wednesday, May 11, 2022	10:00	60	74	51	40
Wednesday, May 11, 2022	11:00	61	76	54	42
Wednesday, May 11, 2022	12:00	61	77	54	42
Wednesday, May 11, 2022	13:00	62	87	53	43
Wednesday, May 11, 2022	14:00	63	78	59	44
Wednesday, May 11, 2022	15:00	63	77	58	46
Wednesday, May 11, 2022	16:00	62	77	57	45
Wednesday, May 11, 2022	17:00	61	77	56	44
Wednesday, May 11, 2022	18:00	60	80	50	42
Wednesday, May 11, 2022	19:00	58	79	47	42
Wednesday, May 11, 2022	20:00	60	89	45	42
Wednesday, May 11, 2022	21:00	57	77	45	42
Wednesday, May 11, 2022	22:00	54	71	43	41
Wednesday, May 11, 2022	23:00	53	74	42	40

Statistics	Leq	Lmax	L50	L90
Day Average	61	79	53	42
Night Average	52	68	39	37
Day Low	57	74	45	38
Day High	64	89	60	46
Night Low	38	55	37	36
Night High	59	87	43	41
Ldn	61	Day %		94
CNEL	62	Night %		6



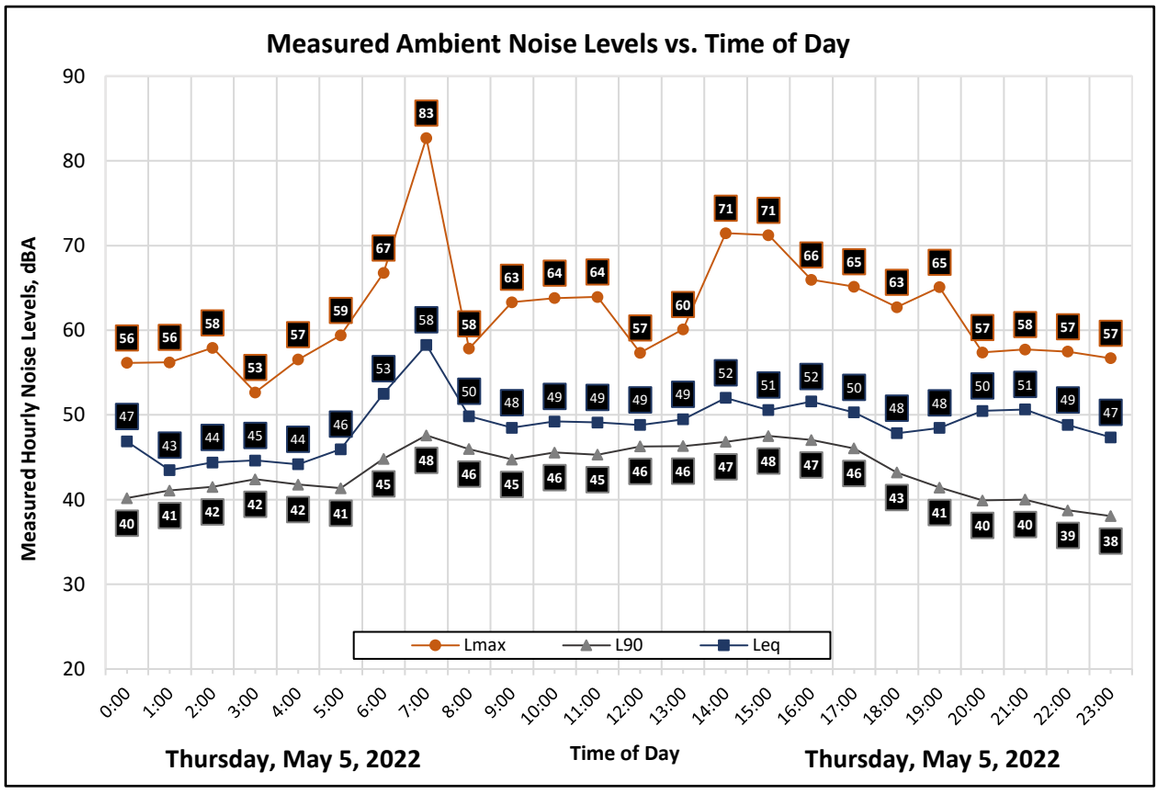


Appendix B2a: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: West of the Project Boundary
Coordinates: 39.2046589°, -120.2028932°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, May 5, 2022	0:00	47	56	43	40
Thursday, May 5, 2022	1:00	43	56	43	41
Thursday, May 5, 2022	2:00	44	58	43	42
Thursday, May 5, 2022	3:00	45	53	44	42
Thursday, May 5, 2022	4:00	44	57	43	42
Thursday, May 5, 2022	5:00	46	59	44	41
Thursday, May 5, 2022	6:00	53	67	50	45
Thursday, May 5, 2022	7:00	58	83	51	48
Thursday, May 5, 2022	8:00	50	58	49	46
Thursday, May 5, 2022	9:00	48	63	48	45
Thursday, May 5, 2022	10:00	49	64	48	46
Thursday, May 5, 2022	11:00	49	64	48	45
Thursday, May 5, 2022	12:00	49	57	48	46
Thursday, May 5, 2022	13:00	49	60	48	46
Thursday, May 5, 2022	14:00	52	71	49	47
Thursday, May 5, 2022	15:00	51	71	50	48
Thursday, May 5, 2022	16:00	52	66	49	47
Thursday, May 5, 2022	17:00	50	65	49	46
Thursday, May 5, 2022	18:00	48	63	47	43
Thursday, May 5, 2022	19:00	48	65	46	41
Thursday, May 5, 2022	20:00	50	57	49	40
Thursday, May 5, 2022	21:00	51	58	49	40
Thursday, May 5, 2022	22:00	49	57	45	39
Thursday, May 5, 2022	23:00	47	57	43	38

Statistics	Leq	Lmax	L50	L90
Day Average	51	64	49	45
Night Average	47	58	44	41
Day Low	48	57	46	40
Day High	58	83	51	48
Night Low	43	53	43	38
Night High	53	67	50	45
Ldn	54	Day %		83
CNEL	55	Night %		17

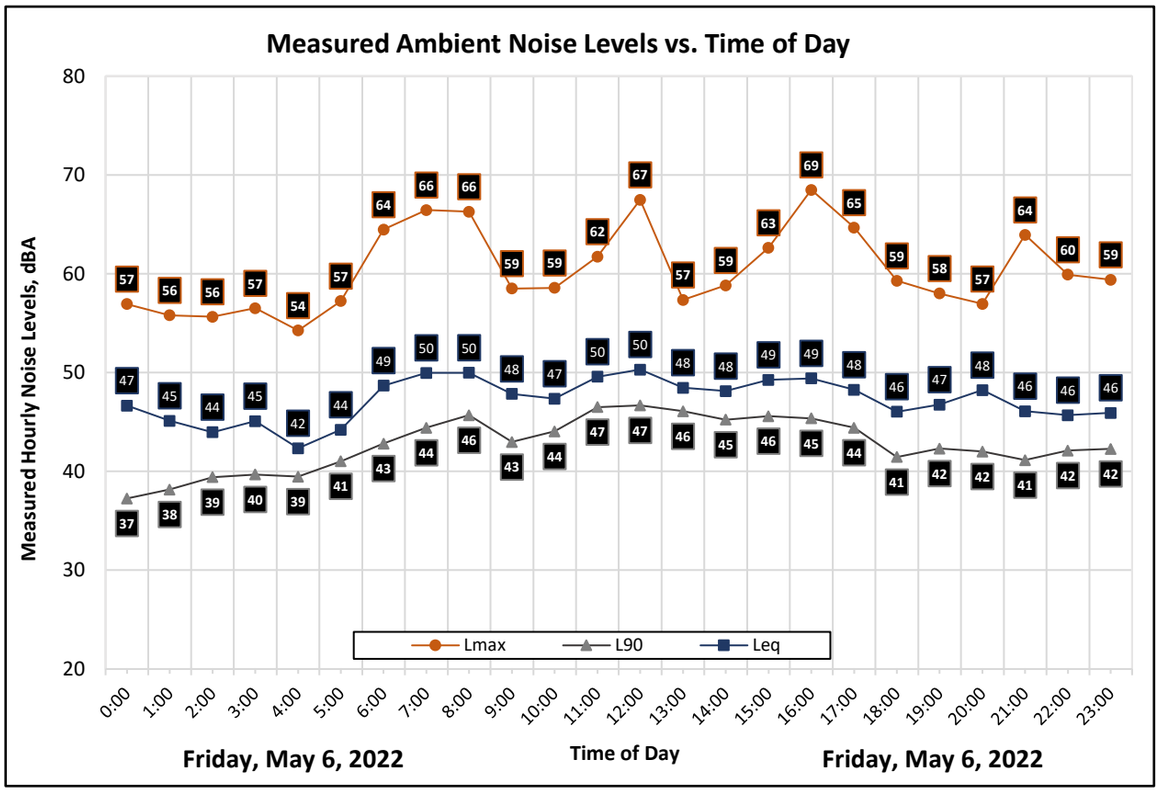


Appendix B2b: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: West of the Project Boundary
Coordinates: 39.2046589°, -120.2028932°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Friday, May 6, 2022	0:00	47	57	41	37
Friday, May 6, 2022	1:00	45	56	40	38
Friday, May 6, 2022	2:00	44	56	41	39
Friday, May 6, 2022	3:00	45	57	41	40
Friday, May 6, 2022	4:00	42	54	41	39
Friday, May 6, 2022	5:00	44	57	43	41
Friday, May 6, 2022	6:00	49	64	47	43
Friday, May 6, 2022	7:00	50	66	48	44
Friday, May 6, 2022	8:00	50	66	49	46
Friday, May 6, 2022	9:00	48	59	47	43
Friday, May 6, 2022	10:00	47	59	47	44
Friday, May 6, 2022	11:00	50	62	49	47
Friday, May 6, 2022	12:00	50	67	49	47
Friday, May 6, 2022	13:00	48	57	48	46
Friday, May 6, 2022	14:00	48	59	47	45
Friday, May 6, 2022	15:00	49	63	48	46
Friday, May 6, 2022	16:00	49	69	48	45
Friday, May 6, 2022	17:00	48	65	47	44
Friday, May 6, 2022	18:00	46	59	45	41
Friday, May 6, 2022	19:00	47	58	46	42
Friday, May 6, 2022	20:00	48	57	46	42
Friday, May 6, 2022	21:00	46	64	44	41
Friday, May 6, 2022	22:00	46	60	45	42
Friday, May 6, 2022	23:00	46	59	44	42

Statistics	Leq	Lmax	L50	L90
Day Average	49	62	47	44
Night Average	46	58	43	40
Day Low	46	57	44	41
Day High	50	69	49	47
Night Low	42	54	40	37
Night High	49	64	47	43
Ldn	52	Day %		79
CNEL	53	Night %		21

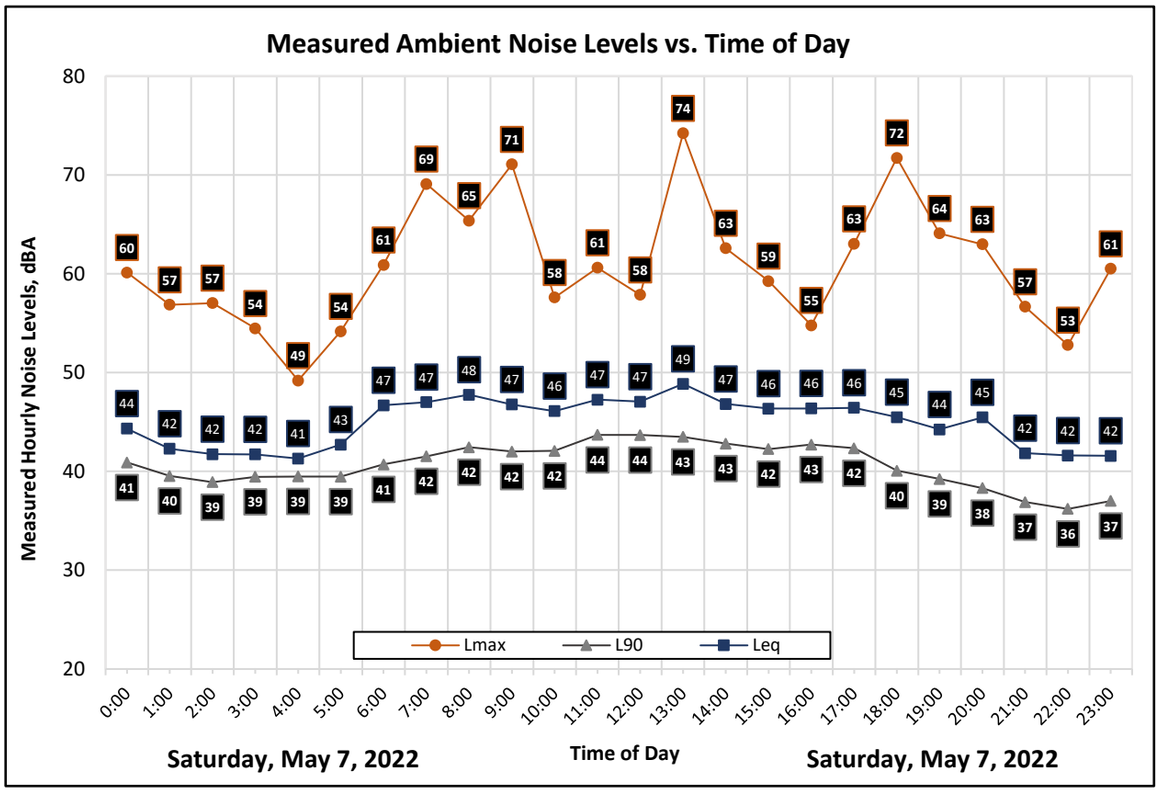


Appendix B2c: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: West of the Project Boundary
Coordinates: 39.2046589°, -120.2028932°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, May 7, 2022	0:00	44	60	43	41
Saturday, May 7, 2022	1:00	42	57	41	40
Saturday, May 7, 2022	2:00	42	57	40	39
Saturday, May 7, 2022	3:00	42	54	41	39
Saturday, May 7, 2022	4:00	41	49	41	39
Saturday, May 7, 2022	5:00	43	54	41	39
Saturday, May 7, 2022	6:00	47	61	44	41
Saturday, May 7, 2022	7:00	47	69	45	42
Saturday, May 7, 2022	8:00	48	65	46	42
Saturday, May 7, 2022	9:00	47	71	45	42
Saturday, May 7, 2022	10:00	46	58	45	42
Saturday, May 7, 2022	11:00	47	61	46	44
Saturday, May 7, 2022	12:00	47	58	46	44
Saturday, May 7, 2022	13:00	49	74	46	43
Saturday, May 7, 2022	14:00	47	63	46	43
Saturday, May 7, 2022	15:00	46	59	45	42
Saturday, May 7, 2022	16:00	46	55	46	43
Saturday, May 7, 2022	17:00	46	63	45	42
Saturday, May 7, 2022	18:00	45	72	43	40
Saturday, May 7, 2022	19:00	44	64	43	39
Saturday, May 7, 2022	20:00	45	63	43	38
Saturday, May 7, 2022	21:00	42	57	40	37
Saturday, May 7, 2022	22:00	42	53	39	36
Saturday, May 7, 2022	23:00	42	61	39	37

Statistics	Leq	Lmax	L50	L90
Day Average	47	63	45	42
Night Average	43	56	41	39
Day Low	42	55	40	37
Day High	49	74	46	44
Night Low	41	49	39	36
Night High	47	61	44	41
Ldn	50	Day %		80
CNEL	50	Night %		20

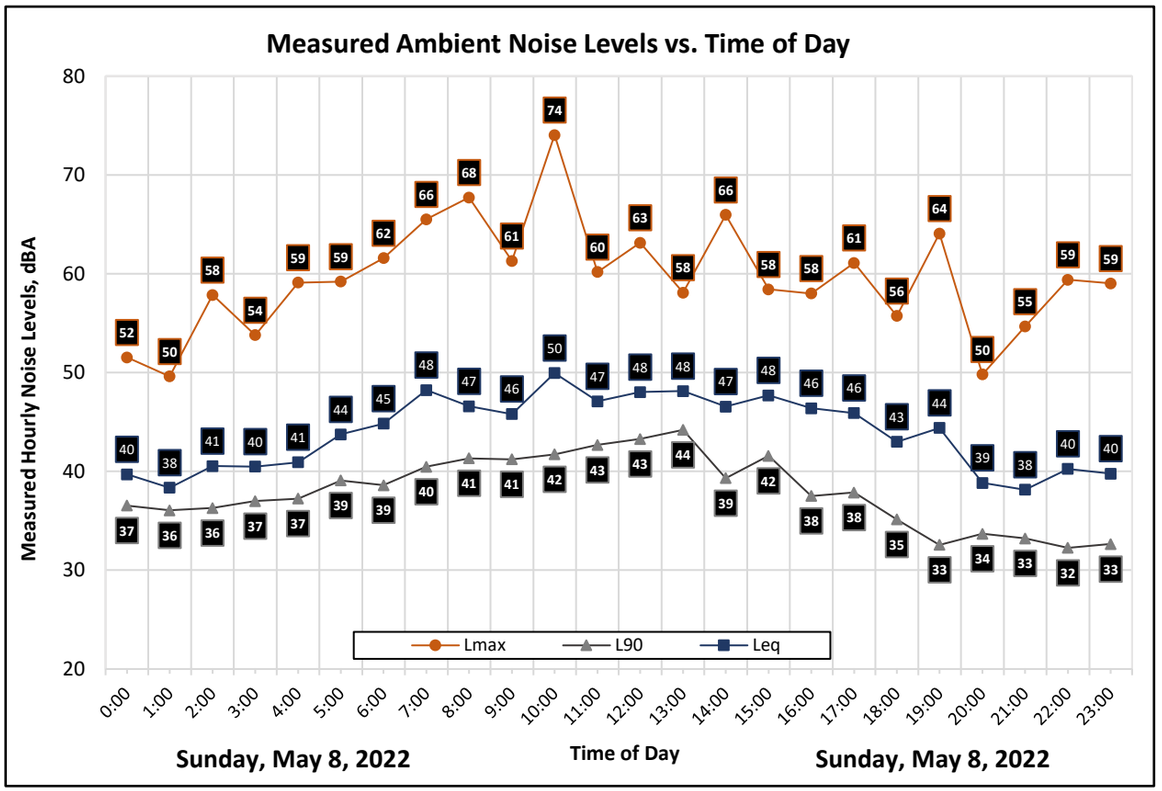


Appendix B2d: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Meter: LDL 820-7
Location: West of the Project Boundary
Calibrator: CAL200
Coordinates: 39.2046589°, -120.2028932°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, May 8, 2022	0:00	40	52	38	37
Sunday, May 8, 2022	1:00	38	50	37	36
Sunday, May 8, 2022	2:00	41	58	38	36
Sunday, May 8, 2022	3:00	40	54	39	37
Sunday, May 8, 2022	4:00	41	59	40	37
Sunday, May 8, 2022	5:00	44	59	42	39
Sunday, May 8, 2022	6:00	45	62	43	39
Sunday, May 8, 2022	7:00	48	66	45	40
Sunday, May 8, 2022	8:00	47	68	45	41
Sunday, May 8, 2022	9:00	46	61	45	41
Sunday, May 8, 2022	10:00	50	74	46	42
Sunday, May 8, 2022	11:00	47	60	46	43
Sunday, May 8, 2022	12:00	48	63	47	43
Sunday, May 8, 2022	13:00	48	58	48	44
Sunday, May 8, 2022	14:00	47	66	44	39
Sunday, May 8, 2022	15:00	48	58	46	42
Sunday, May 8, 2022	16:00	46	58	44	38
Sunday, May 8, 2022	17:00	46	61	43	38
Sunday, May 8, 2022	18:00	43	56	40	35
Sunday, May 8, 2022	19:00	44	64	37	33
Sunday, May 8, 2022	20:00	39	50	37	34
Sunday, May 8, 2022	21:00	38	55	36	33
Sunday, May 8, 2022	22:00	40	59	35	32
Sunday, May 8, 2022	23:00	40	59	35	33

Statistics	Leq	Lmax	L50	L90
Day Average	47	61	43	39
Night Average	42	57	38	36
Day Low	38	50	36	33
Day High	50	74	48	44
Night Low	38	50	35	32
Night High	45	62	43	39
Ldn	49	Day %		86
CNEL	49	Night %		14

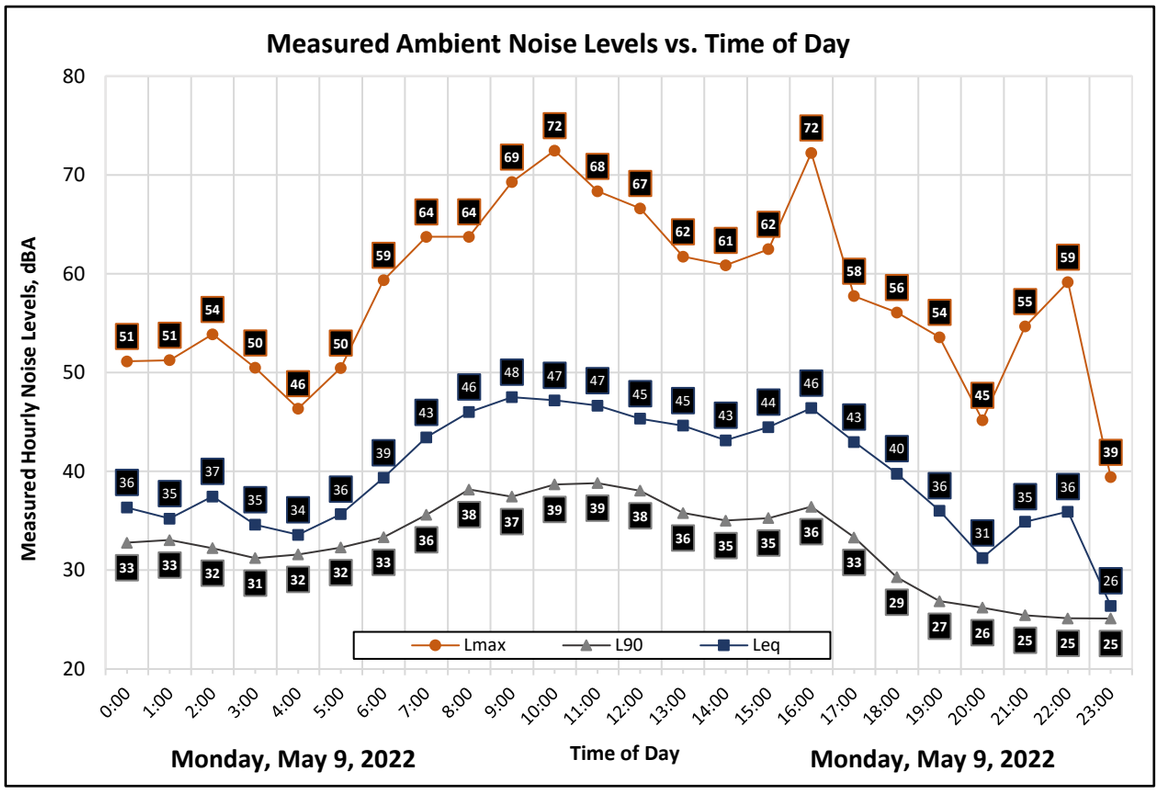


Appendix B2e: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: West of the Project Boundary
Coordinates: 39.2046589°, -120.2028932°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, May 9, 2022	0:00	36	51	34	33
Monday, May 9, 2022	1:00	35	51	34	33
Monday, May 9, 2022	2:00	37	54	34	32
Monday, May 9, 2022	3:00	35	50	32	31
Monday, May 9, 2022	4:00	34	46	33	32
Monday, May 9, 2022	5:00	36	50	34	32
Monday, May 9, 2022	6:00	39	59	37	33
Monday, May 9, 2022	7:00	43	64	41	36
Monday, May 9, 2022	8:00	46	64	44	38
Monday, May 9, 2022	9:00	48	69	43	37
Monday, May 9, 2022	10:00	47	72	44	39
Monday, May 9, 2022	11:00	47	68	44	39
Monday, May 9, 2022	12:00	45	67	43	38
Monday, May 9, 2022	13:00	45	62	42	36
Monday, May 9, 2022	14:00	43	61	41	35
Monday, May 9, 2022	15:00	44	62	42	35
Monday, May 9, 2022	16:00	46	72	42	36
Monday, May 9, 2022	17:00	43	58	41	33
Monday, May 9, 2022	18:00	40	56	35	29
Monday, May 9, 2022	19:00	36	54	30	27
Monday, May 9, 2022	20:00	31	45	28	26
Monday, May 9, 2022	21:00	35	55	28	25
Monday, May 9, 2022	22:00	36	59	26	25
Monday, May 9, 2022	23:00	26	39	26	25

Statistics	Leq	Lmax	L50	L90
Day Average	44	62	39	34
Night Average	36	51	32	31
Day Low	31	45	28	25
Day High	48	72	44	39
Night Low	26	39	26	25
Night High	39	59	37	33
Ldn	45	Day %		93
CNEL	45	Night %		7

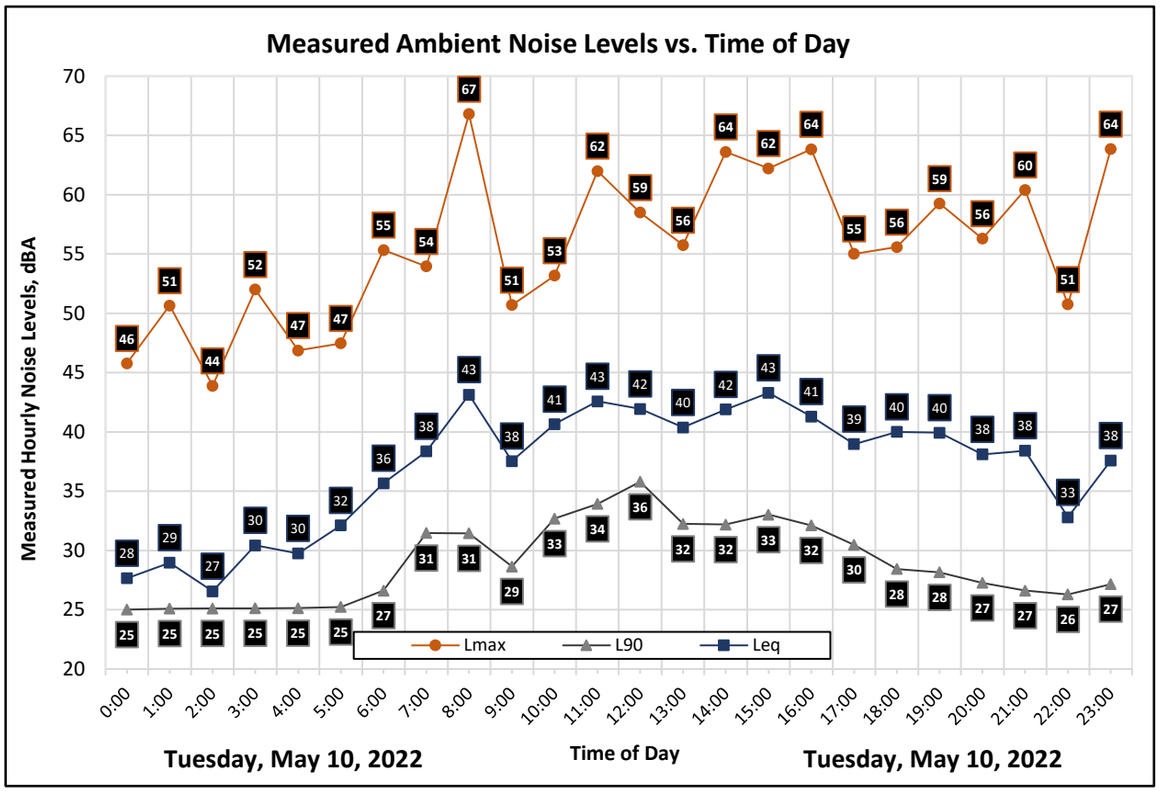


Appendix B2f: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: West of the Project Boundary
Coordinates: 39.2046589°, -120.2028932°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, May 10, 2022	0:00	28	46	26	25
Tuesday, May 10, 2022	1:00	29	51	26	25
Tuesday, May 10, 2022	2:00	27	44	26	25
Tuesday, May 10, 2022	3:00	30	52	26	25
Tuesday, May 10, 2022	4:00	30	47	26	25
Tuesday, May 10, 2022	5:00	32	47	26	25
Tuesday, May 10, 2022	6:00	36	55	32	27
Tuesday, May 10, 2022	7:00	38	54	37	31
Tuesday, May 10, 2022	8:00	43	67	37	31
Tuesday, May 10, 2022	9:00	38	51	35	29
Tuesday, May 10, 2022	10:00	41	53	39	33
Tuesday, May 10, 2022	11:00	43	62	39	34
Tuesday, May 10, 2022	12:00	42	59	40	36
Tuesday, May 10, 2022	13:00	40	56	39	32
Tuesday, May 10, 2022	14:00	42	64	40	32
Tuesday, May 10, 2022	15:00	43	62	40	33
Tuesday, May 10, 2022	16:00	41	64	38	32
Tuesday, May 10, 2022	17:00	39	55	37	30
Tuesday, May 10, 2022	18:00	40	56	35	28
Tuesday, May 10, 2022	19:00	40	59	36	28
Tuesday, May 10, 2022	20:00	38	56	33	27
Tuesday, May 10, 2022	21:00	38	60	30	27
Tuesday, May 10, 2022	22:00	33	51	28	26
Tuesday, May 10, 2022	23:00	38	64	29	27

Statistics	Leq	Lmax	L50	L90
Day Average	41	58	37	31
Night Average	33	51	27	26
Day Low	38	51	30	27
Day High	43	67	40	36
Night Low	27	44	26	25
Night High	38	64	32	27
Ldn	41	Day %		92
CNEL	42	Night %		8

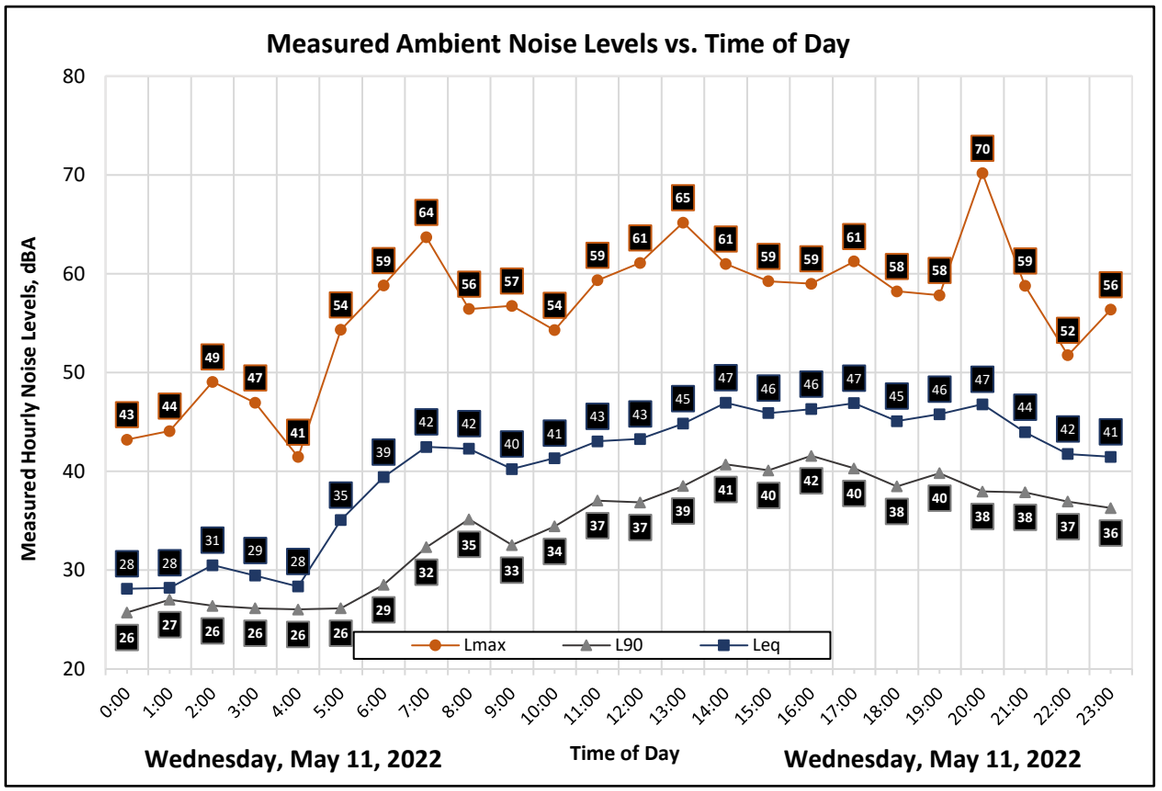


Appendix B2g: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: West of the Project Boundary
Coordinates: 39.2046589°, -120.2028932°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Wednesday, May 11, 2022	0:00	28	43	27	26
Wednesday, May 11, 2022	1:00	28	44	28	27
Wednesday, May 11, 2022	2:00	31	49	27	26
Wednesday, May 11, 2022	3:00	29	47	27	26
Wednesday, May 11, 2022	4:00	28	41	27	26
Wednesday, May 11, 2022	5:00	35	54	29	26
Wednesday, May 11, 2022	6:00	39	59	35	29
Wednesday, May 11, 2022	7:00	42	64	39	32
Wednesday, May 11, 2022	8:00	42	56	40	35
Wednesday, May 11, 2022	9:00	40	57	38	33
Wednesday, May 11, 2022	10:00	41	54	40	34
Wednesday, May 11, 2022	11:00	43	59	42	37
Wednesday, May 11, 2022	12:00	43	61	42	37
Wednesday, May 11, 2022	13:00	45	65	42	39
Wednesday, May 11, 2022	14:00	47	61	46	41
Wednesday, May 11, 2022	15:00	46	59	45	40
Wednesday, May 11, 2022	16:00	46	59	45	42
Wednesday, May 11, 2022	17:00	47	61	45	40
Wednesday, May 11, 2022	18:00	45	58	43	38
Wednesday, May 11, 2022	19:00	46	58	44	40
Wednesday, May 11, 2022	20:00	47	70	42	38
Wednesday, May 11, 2022	21:00	44	59	42	38
Wednesday, May 11, 2022	22:00	42	52	39	37
Wednesday, May 11, 2022	23:00	41	56	38	36

Statistics	Leq	Lmax	L50	L90
Day Average	45	60	42	38
Night Average	36	50	31	29
Day Low	40	54	38	32
Day High	47	70	46	42
Night Low	28	41	27	26
Night High	41	59	39	37
Ldn	45	Day %		94
CNEL	46	Night %		6

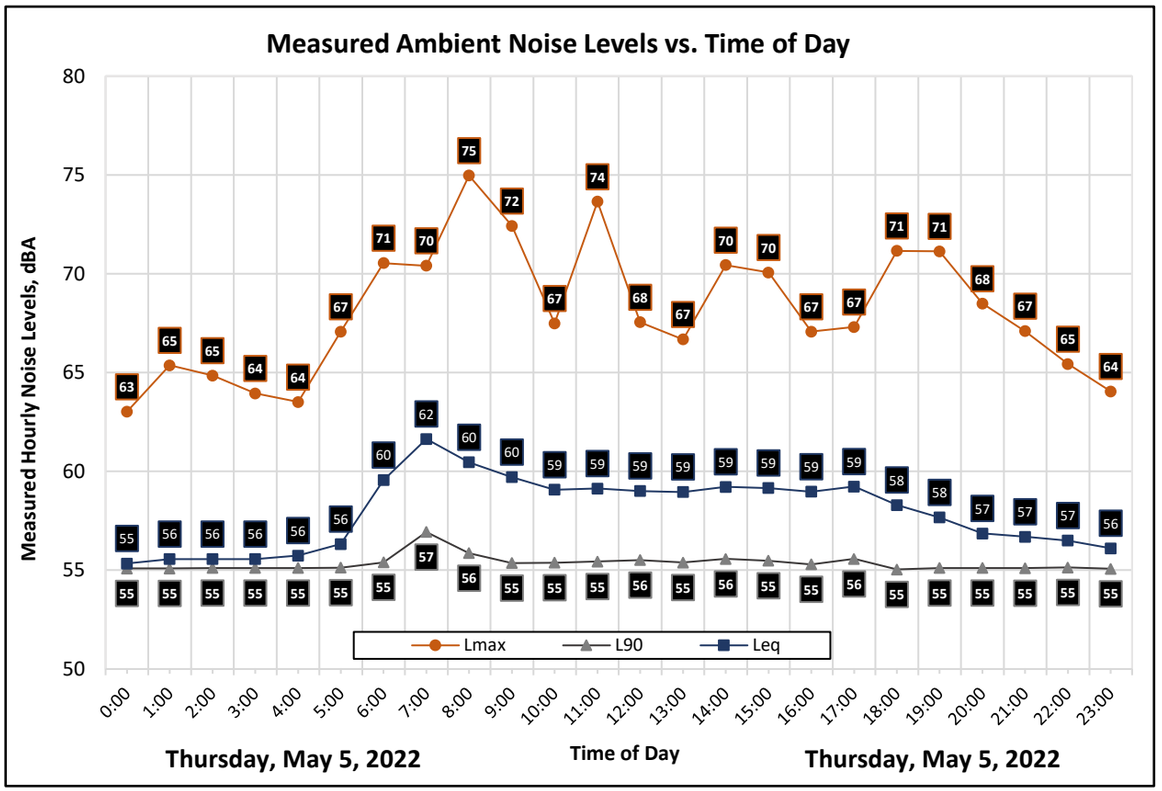


Appendix B3a: Continuous Noise Monitoring Results

Site: LT-2
Project: SNOW Museum Project
Location: East of the Project Boundary
Coordinates: 39.2028727°, -120.1998811°
Meter: LDL 820-7
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, May 5, 2022	0:00	55	63	56	55
Thursday, May 5, 2022	1:00	56	65	56	55
Thursday, May 5, 2022	2:00	56	65	56	55
Thursday, May 5, 2022	3:00	56	64	56	55
Thursday, May 5, 2022	4:00	56	64	56	55
Thursday, May 5, 2022	5:00	56	67	56	55
Thursday, May 5, 2022	6:00	60	71	57	55
Thursday, May 5, 2022	7:00	62	70	60	57
Thursday, May 5, 2022	8:00	60	75	59	56
Thursday, May 5, 2022	9:00	60	72	58	55
Thursday, May 5, 2022	10:00	59	67	58	55
Thursday, May 5, 2022	11:00	59	74	58	55
Thursday, May 5, 2022	12:00	59	68	58	56
Thursday, May 5, 2022	13:00	59	67	58	55
Thursday, May 5, 2022	14:00	59	70	58	56
Thursday, May 5, 2022	15:00	59	70	58	55
Thursday, May 5, 2022	16:00	59	67	58	55
Thursday, May 5, 2022	17:00	59	67	58	56
Thursday, May 5, 2022	18:00	58	71	57	55
Thursday, May 5, 2022	19:00	58	71	56	55
Thursday, May 5, 2022	20:00	57	68	56	55
Thursday, May 5, 2022	21:00	57	67	56	55
Thursday, May 5, 2022	22:00	57	65	56	55
Thursday, May 5, 2022	23:00	56	64	56	55

Statistics	Leq	Lmax	L50	L90
Day Average	59	70	58	55
Night Average	56	65	56	55
Day Low	57	67	56	55
Day High	62	75	60	57
Night Low	55	63	56	55
Night High	60	71	57	55
Ldn	63	Day %		78
CNEL	63	Night %		22

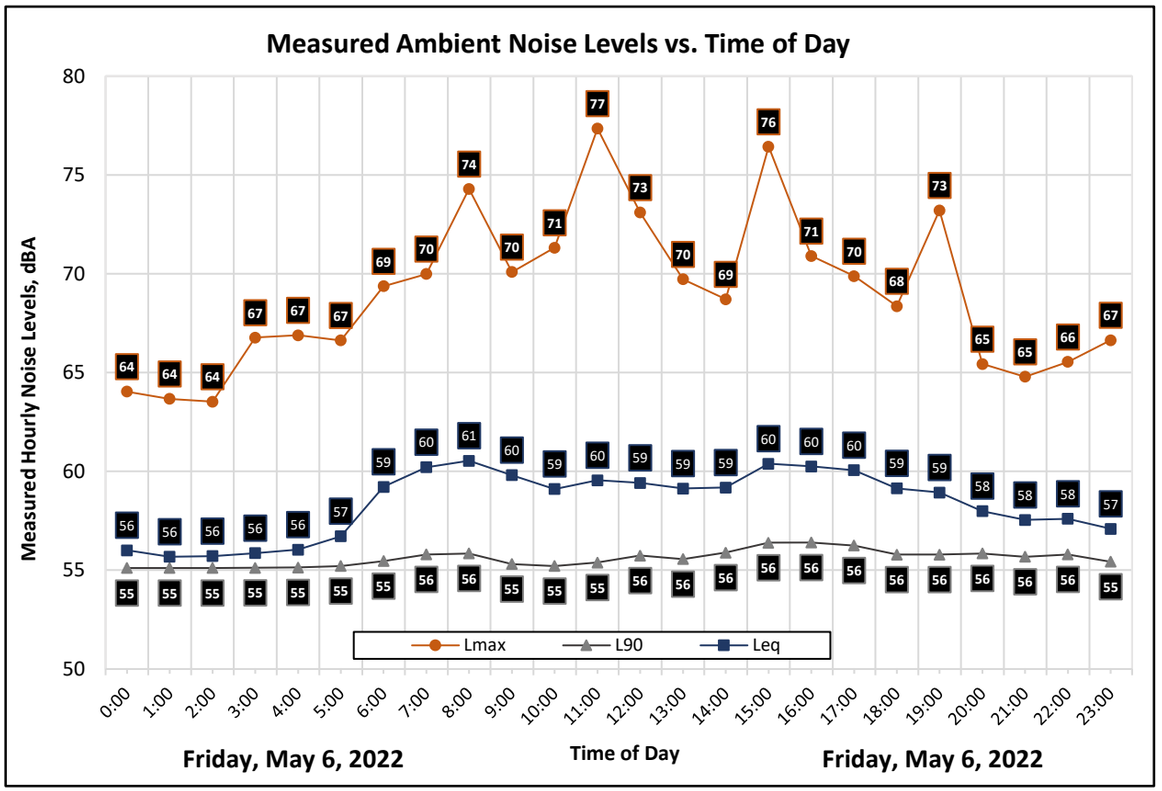


Appendix B3b: Continuous Noise Monitoring Results

Site: LT-3
Project: SNOW Museum Project
Location: East of the Project Boundary
Coordinates: 39.2028727°, -120.1998811°
Meter: LDL 820-8
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Friday, May 6, 2022	0:00	56	64	56	55
Friday, May 6, 2022	1:00	56	64	56	55
Friday, May 6, 2022	2:00	56	64	56	55
Friday, May 6, 2022	3:00	56	67	56	55
Friday, May 6, 2022	4:00	56	67	56	55
Friday, May 6, 2022	5:00	57	67	56	55
Friday, May 6, 2022	6:00	59	69	57	55
Friday, May 6, 2022	7:00	60	70	58	56
Friday, May 6, 2022	8:00	61	74	59	56
Friday, May 6, 2022	9:00	60	70	58	55
Friday, May 6, 2022	10:00	59	71	58	55
Friday, May 6, 2022	11:00	60	77	58	55
Friday, May 6, 2022	12:00	59	73	58	56
Friday, May 6, 2022	13:00	59	70	58	56
Friday, May 6, 2022	14:00	59	69	58	56
Friday, May 6, 2022	15:00	60	76	60	56
Friday, May 6, 2022	16:00	60	71	59	56
Friday, May 6, 2022	17:00	60	70	59	56
Friday, May 6, 2022	18:00	59	68	57	56
Friday, May 6, 2022	19:00	59	73	57	56
Friday, May 6, 2022	20:00	58	65	57	56
Friday, May 6, 2022	21:00	58	65	57	56
Friday, May 6, 2022	22:00	58	66	57	56
Friday, May 6, 2022	23:00	57	67	56	55

Statistics	Leq	Lmax	L50	L90
Day Average	59	71	58	56
Night Average	57	66	56	55
Day Low	58	65	57	55
Day High	61	77	60	56
Night Low	56	64	56	55
Night High	59	69	57	56
Ldn	63	Day %		78
CNEL	64	Night %		22

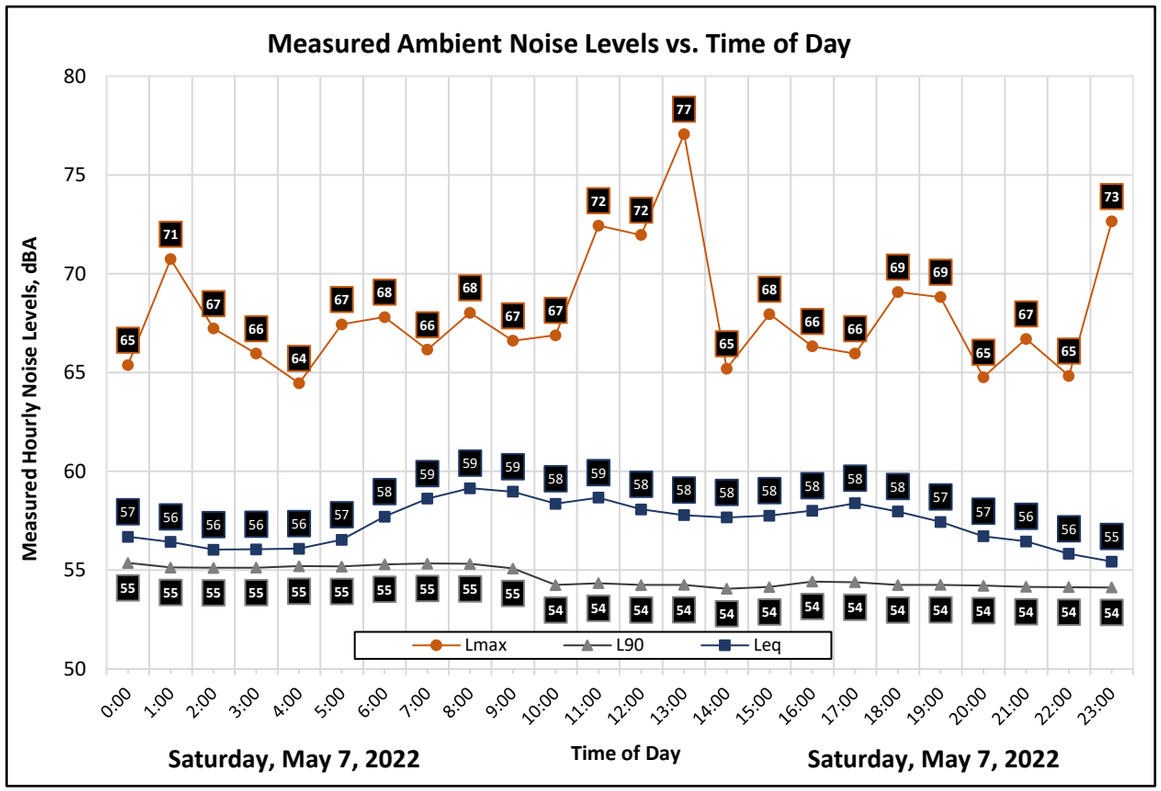


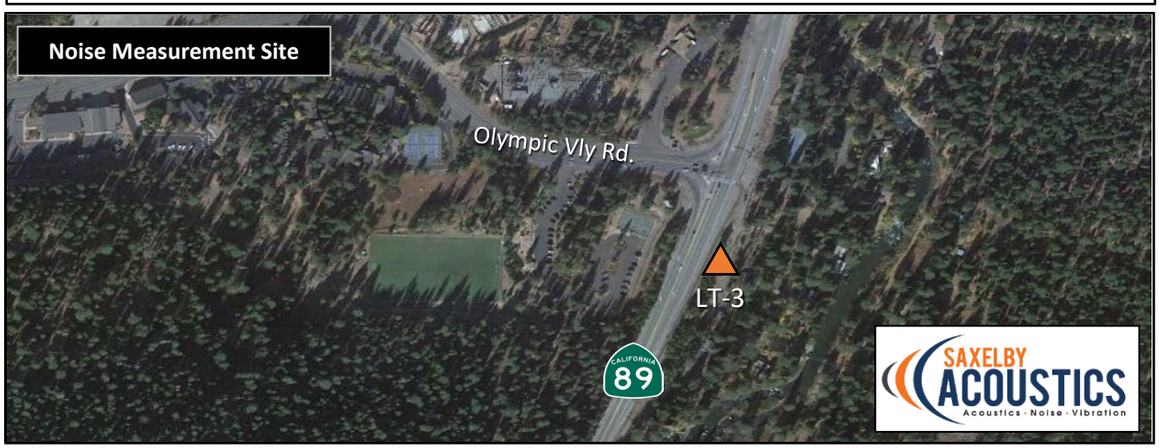
Appendix B3c: Continuous Noise Monitoring Results

Site: LT-3
Project: SNOW Museum Project
Location: East of the Project Boundary
Coordinates: 39.2028727°, -120.1998811°
Meter: LDL 820-8
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, May 7, 2022	0:00	57	65	56	55
Saturday, May 7, 2022	1:00	56	71	56	55
Saturday, May 7, 2022	2:00	56	67	56	55
Saturday, May 7, 2022	3:00	56	66	56	55
Saturday, May 7, 2022	4:00	56	64	56	55
Saturday, May 7, 2022	5:00	57	67	56	55
Saturday, May 7, 2022	6:00	58	68	56	55
Saturday, May 7, 2022	7:00	59	66	57	55
Saturday, May 7, 2022	8:00	59	68	57	55
Saturday, May 7, 2022	9:00	59	67	57	55
Saturday, May 7, 2022	10:00	58	67	57	54
Saturday, May 7, 2022	11:00	59	72	57	54
Saturday, May 7, 2022	12:00	58	72	57	54
Saturday, May 7, 2022	13:00	58	77	56	54
Saturday, May 7, 2022	14:00	58	65	57	54
Saturday, May 7, 2022	15:00	58	68	57	54
Saturday, May 7, 2022	16:00	58	66	57	54
Saturday, May 7, 2022	17:00	58	66	57	54
Saturday, May 7, 2022	18:00	58	69	56	54
Saturday, May 7, 2022	19:00	57	69	56	54
Saturday, May 7, 2022	20:00	57	65	55	54
Saturday, May 7, 2022	21:00	56	67	55	54
Saturday, May 7, 2022	22:00	56	65	55	54
Saturday, May 7, 2022	23:00	55	73	55	54

Statistics	Leq	Lmax	L50	L90
Day Average	58	68	56	54
Night Average	56	67	56	55
Day Low	56	65	55	54
Day High	59	77	57	55
Night Low	55	64	55	54
Night High	58	73	56	55
Ldn	63	Day %		73
CNEL	63	Night %		27



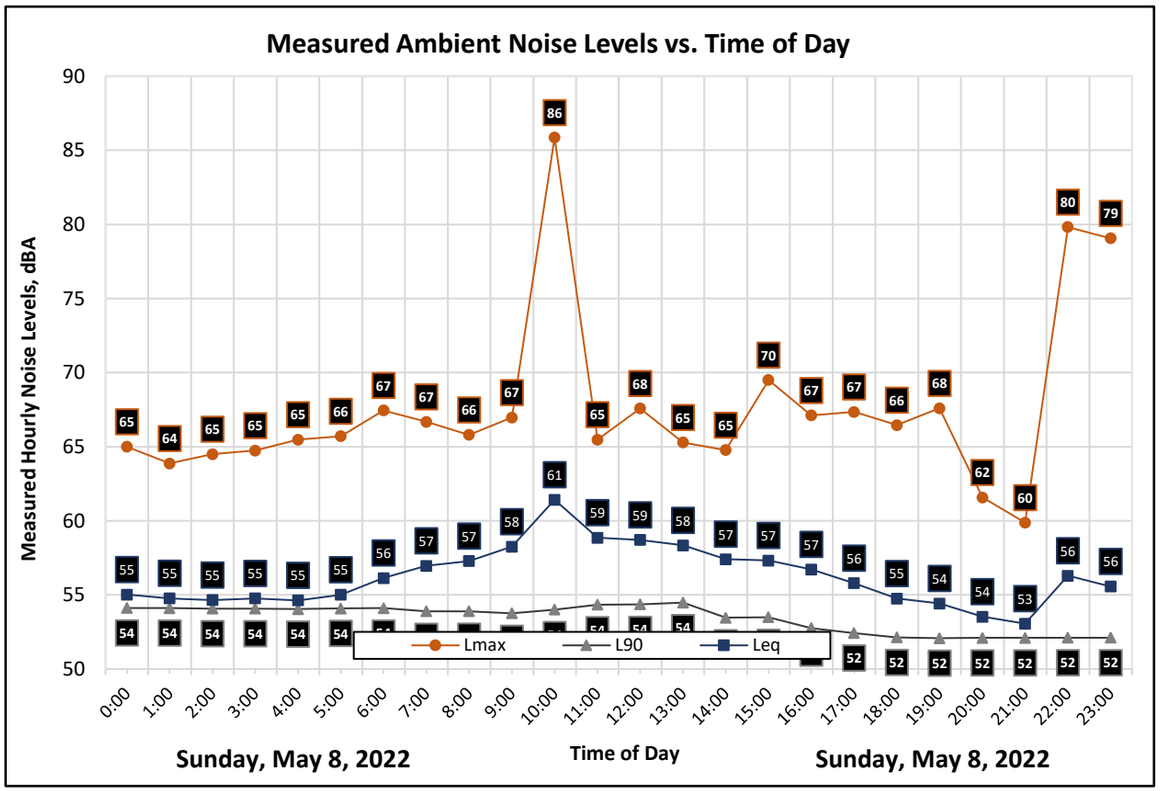


Appendix B3d: Continuous Noise Monitoring Results

Site: LT-3
Project: SNOW Museum Project
Location: East of the Project Boundary
Coordinates: 39.2028727°, -120.1998811°
Meter: LDL 820-8
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, May 8, 2022	0:00	55	65	55	54
Sunday, May 8, 2022	1:00	55	64	55	54
Sunday, May 8, 2022	2:00	55	65	55	54
Sunday, May 8, 2022	3:00	55	65	55	54
Sunday, May 8, 2022	4:00	55	65	55	54
Sunday, May 8, 2022	5:00	55	66	55	54
Sunday, May 8, 2022	6:00	56	67	55	54
Sunday, May 8, 2022	7:00	57	67	55	54
Sunday, May 8, 2022	8:00	57	66	55	54
Sunday, May 8, 2022	9:00	58	67	56	54
Sunday, May 8, 2022	10:00	61	86	57	54
Sunday, May 8, 2022	11:00	59	65	58	54
Sunday, May 8, 2022	12:00	59	68	57	54
Sunday, May 8, 2022	13:00	58	65	57	54
Sunday, May 8, 2022	14:00	57	65	55	53
Sunday, May 8, 2022	15:00	57	70	56	53
Sunday, May 8, 2022	16:00	57	67	54	53
Sunday, May 8, 2022	17:00	56	67	54	52
Sunday, May 8, 2022	18:00	55	66	53	52
Sunday, May 8, 2022	19:00	54	68	53	52
Sunday, May 8, 2022	20:00	54	62	53	52
Sunday, May 8, 2022	21:00	53	60	53	52
Sunday, May 8, 2022	22:00	56	80	53	52
Sunday, May 8, 2022	23:00	56	79	53	52

Statistics	Leq	Lmax	L50	L90
Day Average	57	67	55	53
Night Average	55	68	54	54
Day Low	53	60	53	52
Day High	61	86	58	54
Night Low	55	64	53	52
Night High	56	80	55	54
Ldn	62	Day %		76
CNEL	62	Night %		24

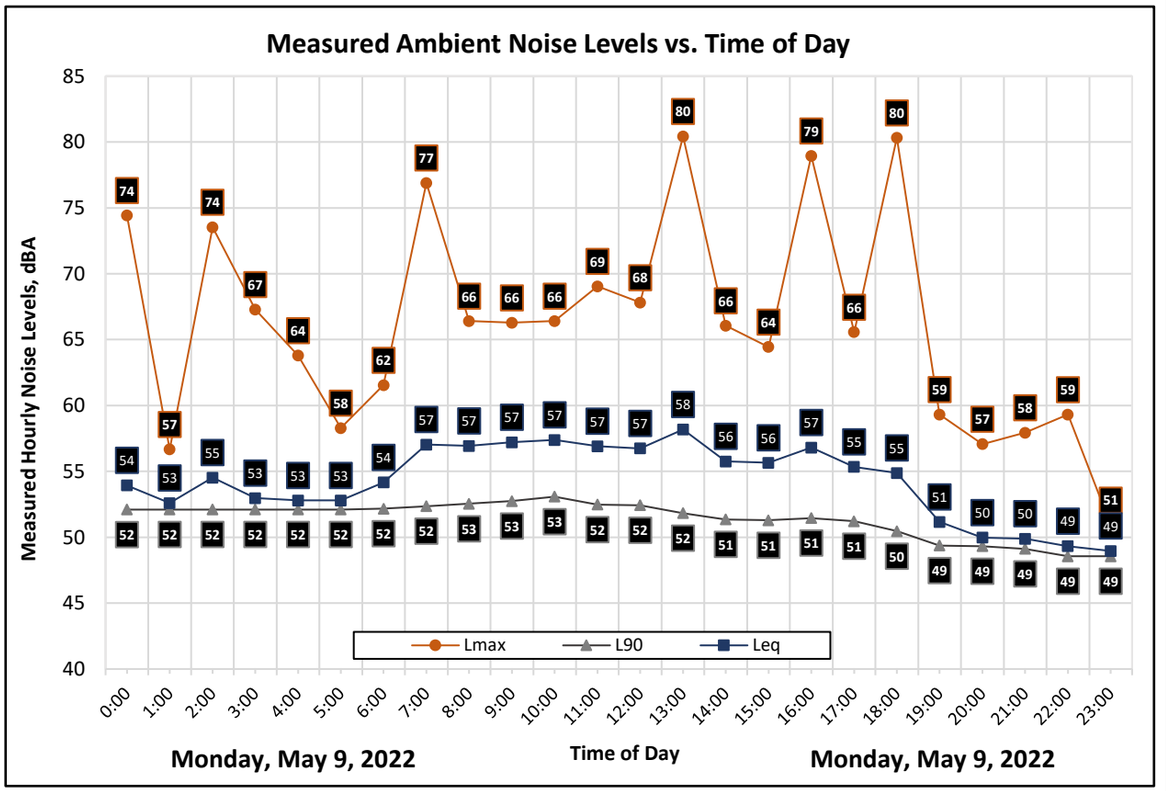


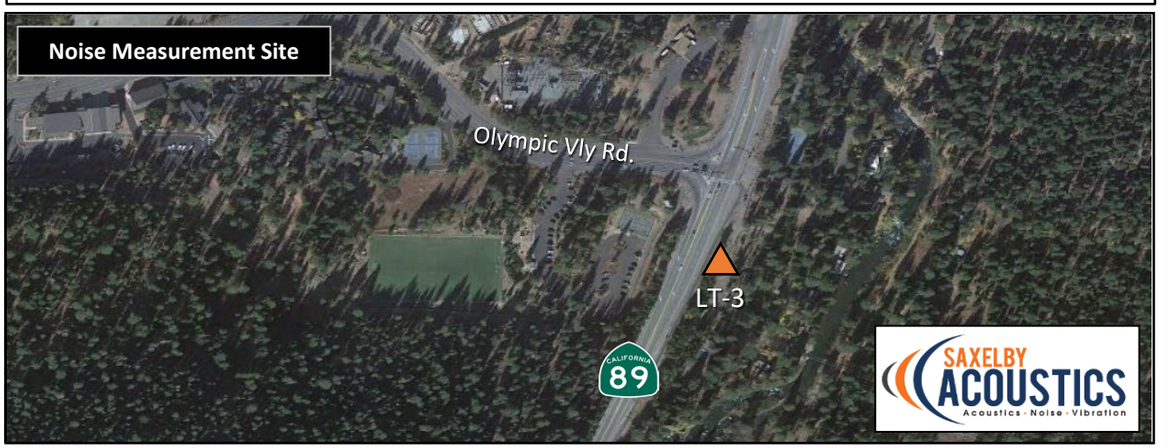
Appendix B3e: Continuous Noise Monitoring Results

Site: LT-3
Project: SNOW Museum Project
Meter: LDL 820-8
Location: East of the Project Boundary
Calibrator: CAL200
Coordinates: 39.2028727°, -120.1998811°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, May 9, 2022	0:00	54	74	53	52
Monday, May 9, 2022	1:00	53	57	53	52
Monday, May 9, 2022	2:00	55	74	53	52
Monday, May 9, 2022	3:00	53	67	53	52
Monday, May 9, 2022	4:00	53	64	53	52
Monday, May 9, 2022	5:00	53	58	53	52
Monday, May 9, 2022	6:00	54	62	53	52
Monday, May 9, 2022	7:00	57	77	54	52
Monday, May 9, 2022	8:00	57	66	56	53
Monday, May 9, 2022	9:00	57	66	55	53
Monday, May 9, 2022	10:00	57	66	55	53
Monday, May 9, 2022	11:00	57	69	55	52
Monday, May 9, 2022	12:00	57	68	54	52
Monday, May 9, 2022	13:00	58	80	54	52
Monday, May 9, 2022	14:00	56	66	54	51
Monday, May 9, 2022	15:00	56	64	54	51
Monday, May 9, 2022	16:00	57	79	54	51
Monday, May 9, 2022	17:00	55	66	53	51
Monday, May 9, 2022	18:00	55	80	52	50
Monday, May 9, 2022	19:00	51	59	50	49
Monday, May 9, 2022	20:00	50	57	50	49
Monday, May 9, 2022	21:00	50	58	50	49
Monday, May 9, 2022	22:00	49	59	49	49
Monday, May 9, 2022	23:00	49	51	49	49

Statistics	Leq	Lmax	L50	L90
Day Average	56	68	53	51
Night Average	53	63	52	51
Day Low	50	57	50	49
Day High	58	80	56	53
Night Low	49	51	49	49
Night High	55	74	53	52
Ldn	60	Day %		78
CNEL	60	Night %		22



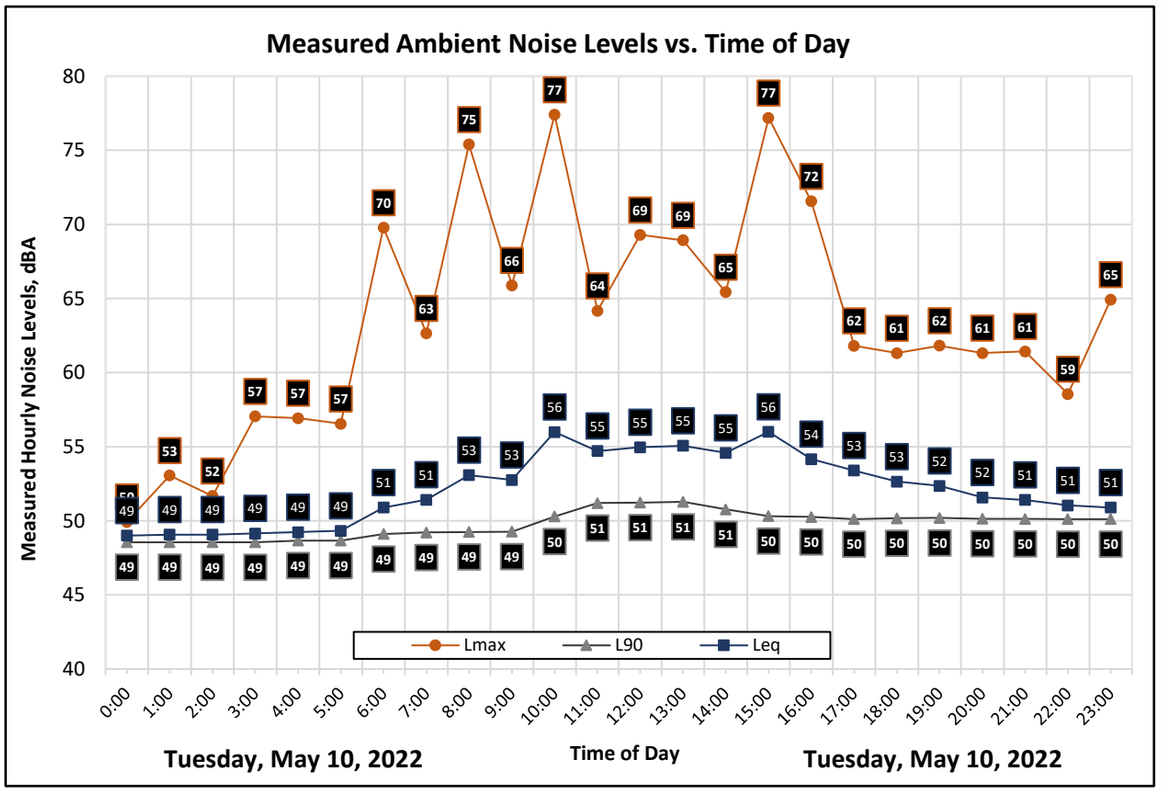


Appendix B3f: Continuous Noise Monitoring Results

Site: LT-3
Project: SNOW Museum Project
Location: East of the Project Boundary
Coordinates: 39.2028727°, -120.1998811°
Meter: LDL 820-8
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, May 10, 2022	0:00	49	50	49	49
Tuesday, May 10, 2022	1:00	49	53	49	49
Tuesday, May 10, 2022	2:00	49	52	49	49
Tuesday, May 10, 2022	3:00	49	57	49	49
Tuesday, May 10, 2022	4:00	49	57	49	49
Tuesday, May 10, 2022	5:00	49	57	49	49
Tuesday, May 10, 2022	6:00	51	70	50	49
Tuesday, May 10, 2022	7:00	51	63	50	49
Tuesday, May 10, 2022	8:00	53	75	51	49
Tuesday, May 10, 2022	9:00	53	66	51	49
Tuesday, May 10, 2022	10:00	56	77	53	50
Tuesday, May 10, 2022	11:00	55	64	53	51
Tuesday, May 10, 2022	12:00	55	69	53	51
Tuesday, May 10, 2022	13:00	55	69	53	51
Tuesday, May 10, 2022	14:00	55	65	53	51
Tuesday, May 10, 2022	15:00	56	77	53	50
Tuesday, May 10, 2022	16:00	54	72	53	50
Tuesday, May 10, 2022	17:00	53	62	52	50
Tuesday, May 10, 2022	18:00	53	61	51	50
Tuesday, May 10, 2022	19:00	52	62	51	50
Tuesday, May 10, 2022	20:00	52	61	51	50
Tuesday, May 10, 2022	21:00	51	61	51	50
Tuesday, May 10, 2022	22:00	51	59	51	50
Tuesday, May 10, 2022	23:00	51	65	51	50

Statistics	Leq	Lmax	L50	L90
Day Average	54	67	52	50
Night Average	50	58	50	49
Day Low	51	61	50	49
Day High	56	77	53	51
Night Low	49	50	49	49
Night High	51	70	51	50
Ldn	57	Day %		83
CNEL	57	Night %		17

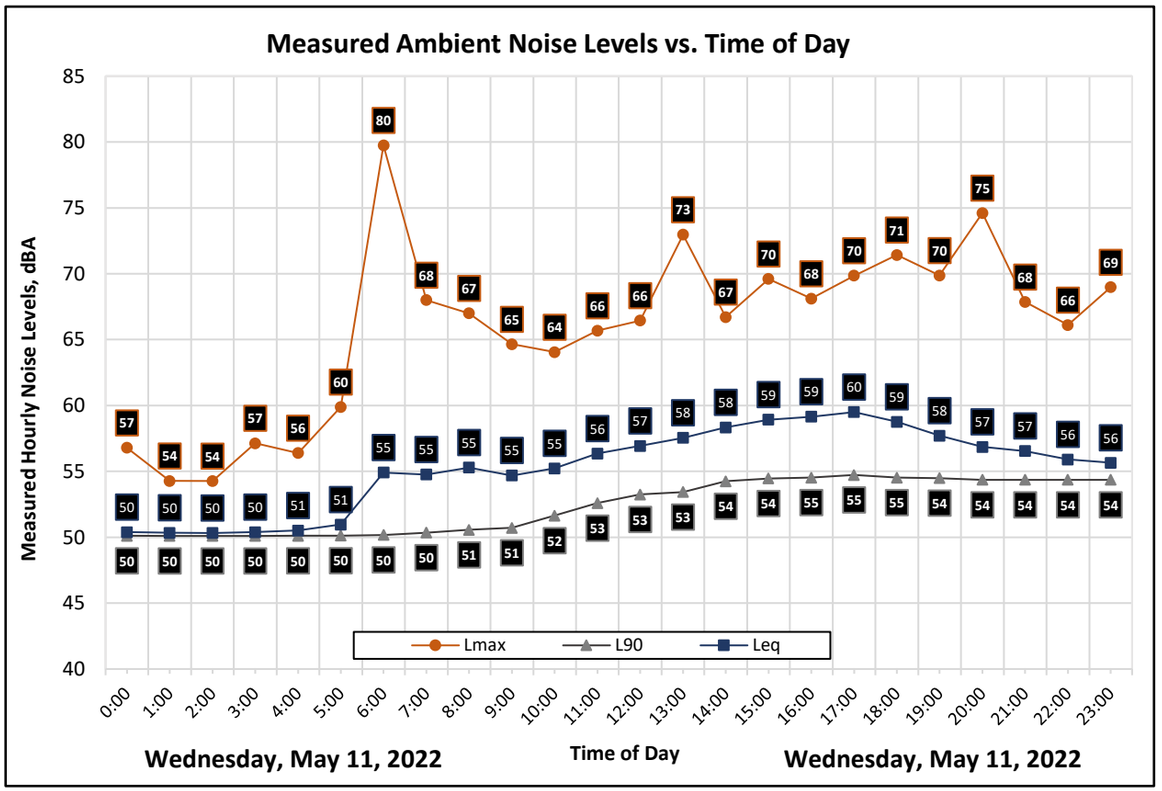


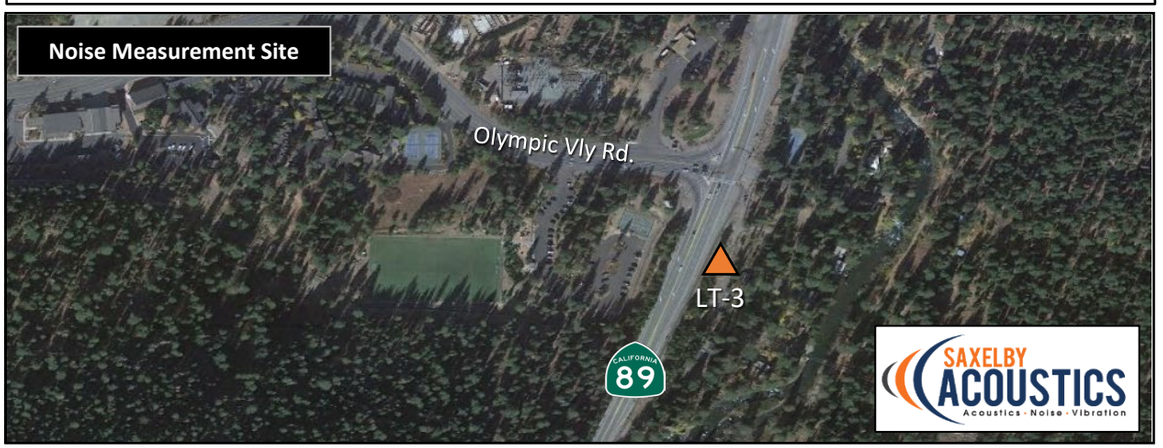
Appendix B3g: Continuous Noise Monitoring Results

Site: LT-3
Project: SNOW Museum Project
Meter: LDL 820-8
Location: East of the Project Boundary
Calibrator: CAL200
Coordinates: 39.2028727°, -120.1998811°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Wednesday, May 11, 2022	0:00	50	57	51	50
Wednesday, May 11, 2022	1:00	50	54	51	50
Wednesday, May 11, 2022	2:00	50	54	51	50
Wednesday, May 11, 2022	3:00	50	57	51	50
Wednesday, May 11, 2022	4:00	51	56	51	50
Wednesday, May 11, 2022	5:00	51	60	51	50
Wednesday, May 11, 2022	6:00	55	80	51	50
Wednesday, May 11, 2022	7:00	55	68	53	50
Wednesday, May 11, 2022	8:00	55	67	54	51
Wednesday, May 11, 2022	9:00	55	65	53	51
Wednesday, May 11, 2022	10:00	55	64	54	52
Wednesday, May 11, 2022	11:00	56	66	55	53
Wednesday, May 11, 2022	12:00	57	66	55	53
Wednesday, May 11, 2022	13:00	58	73	56	53
Wednesday, May 11, 2022	14:00	58	67	57	54
Wednesday, May 11, 2022	15:00	59	70	58	54
Wednesday, May 11, 2022	16:00	59	68	58	55
Wednesday, May 11, 2022	17:00	60	70	58	55
Wednesday, May 11, 2022	18:00	59	71	56	55
Wednesday, May 11, 2022	19:00	58	70	56	54
Wednesday, May 11, 2022	20:00	57	75	55	54
Wednesday, May 11, 2022	21:00	57	68	55	54
Wednesday, May 11, 2022	22:00	56	66	55	54
Wednesday, May 11, 2022	23:00	56	69	55	54

Statistics	Leq	Lmax	L50	L90
Day Average	57	68	55	53
Night Average	52	62	51	51
Day Low	55	64	53	50
Day High	60	75	58	55
Night Low	50	54	51	50
Night High	56	80	55	54
Ldn	60	Day %		86
CNEL	60	Night %		14





Appendix C: Traffic Noise Calculation Inputs and Results

Appendix C-1
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 220214
Description: SNOW Museum Project - Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	SR 89	North of Squaw Valley	16,700	86	0	14	1.0%	1.0%	50	370	0	242	112	52	57.2
2	SR 89	South of Squaw Valley	14,480	86	0	14	1.0%	1.0%	50	290	0	220	102	47	58.2

SAXELBY ACOUSTICS
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Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 220214
Description: SNOW Museum Project - Existing + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	SR 89	North of Squaw Valley	16,760	86	0	14	1.0%	1.0%	50	370	0	242	112	52	57.2
2	SR 89	South of Squaw Valley	14,540	86	0	14	1.0%	1.0%	50	290	0	220	102	47	58.2

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Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 220214
Description: SNOW Museum Project - Future
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	SR 89	North of Squaw Valley	27,600	86	0	14	1.0%	1.0%	50	370	0	338	157	73	59.4
2	SR 89	South of Squaw Valley	22,950	86	0	14	1.0%	1.0%	50	290	0	299	139	64	60.2

Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 220214
Description: SNOW Museum Project - Future + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	SR 89	North of Squaw Valley	27,660	86	0	14	1.0%	1.0%	50	370	0	338	157	73	59.4
2	SR 89	South of Squaw Valley	23,010	86	0	14	1.0%	1.0%	50	290	0	299	139	64	60.2